

BOY'S BOOK OF
**BODY
BUILDING**

STANLEY
PASHKO



THE BOY'S BOOK OF BODY BUILDING

By STANLEY PASHKO

EVERY BOY WANTS to be strong and develop a fine, sturdy physique. Now responsible research workers have tested exercises and devised methods by which any boy can help himself to develop a strong and muscular body. All he need know is how to apply this knowledge.

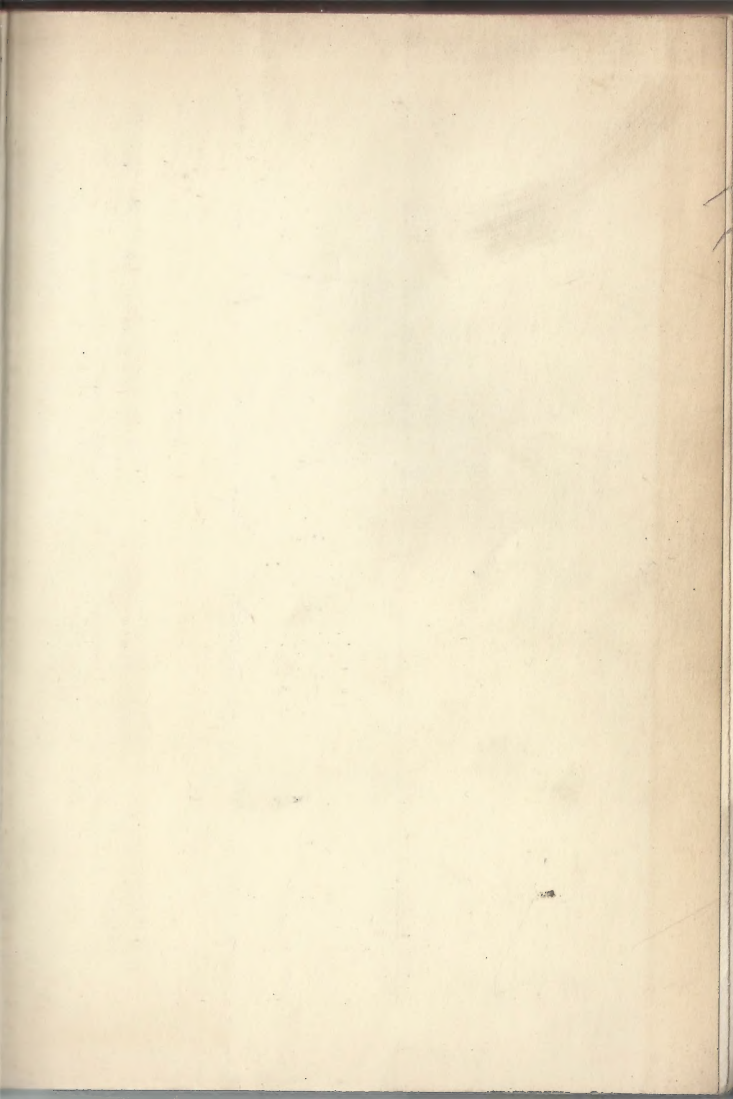
THE BOY'S BOOK OF BODY BUILDING presents the most worthwhile body-building information available. It shows you how to make your own equipment. It tells you of the pitfalls into which unwary young athletes fall to the detriment of their coordination and agility. It helps you to test yourself to determine your faults. There are tests for posture, agility, strength, endurance, and your general over-all condition. Thus, you can find out the special work you need.

Since most boys do need to give special attention to various individual parts of their physiques, THE BOY'S BOOK OF BODY BUILDING has exercises for building up each part of your body. For example, a boy with fine physique but poor performance in sports will need the sections on agility, timing, and coordination.

THE BOY'S BOOK OF BODY BUILDING is a volume that every boy will welcome. The author has been doing sports and physical development articles for *Boy's Life Magazine* for a number of years, and knows what boys need in the way of games, exercises, stunts, and sports to build up their bodies.

GROSSET & DUNLAP

Publishers of WORDS: *The New Dictionary*
NEW YORK 10, N. Y.



Андрій Талабуда. Львів.

Boy's Book of Body Building

andry
AGL
galabuda

Part I Book of Books

BOY'S BOOK OF

BODY BUILDING

by
**STANLEY
PASHKO**

Illustrated by
FRANK RIGNEY

GROSSET & DUNLAP • PUBLISHERS • NEW YORK

COPYRIGHT 1949 BY
STANLEY PASHKO

By arrangement with GREENBERG : PUBLISHER

All rights reserved under International and Pan American Copyright Conventions.



796

P 28 B

To my brother

MIKE

6446147

andriy
AGL
galabuda

Contents

CHAPTER	PAGE
<p>1 PHYSICAL FITNESS</p> <p style="padding-left: 2em;">Value of physical fitness. The benefits of exercise. Some ways to test yourself. How to take the step test.</p>	<p>1</p>
<p>2 POSTURE AND POWER</p> <p style="padding-left: 2em;">Value of good posture. How to check on your- self. The wall test. Personal observation.</p>	<p>13</p>
<p>3 STUNTS AND TRICKS</p> <p style="padding-left: 2em;">Body-building through stunts and tricks. A rub- ber ball wrist developer. Physical fitness with a newspaper. Chair stunts. More fitness tests. The one-legged bend. The wall spring. The heel toss. Handkerchief pickup. Chinning.</p>	<p>20</p>
<p>4 YOUR PORTABLE GYM</p> <p style="padding-left: 2em;">Exercising with a rope. Tug-of-war exercises. Rope climbing. Exercising with a stick. Long dis- tance vaulting. Backward bend. The big stretch. Skinning the cat.</p>	<p>32</p>
<p>5 TWO-MAN TRAINING</p> <p style="padding-left: 2em;">Man-to-man combat. Toe wrestling. Indian wres- tling. Elbow wrestling. Hand wrestling. Cat fight. Break the grip. Hog tying. Stick wrestling. Poison snake. Pick up. Boundary tug. Rooster fight. Back lift. Tractor pull.</p>	<p>46</p>
<p>6 MUSCLE-TENSING EXERCISES</p> <p style="padding-left: 2em;">Muscle against muscle. How exercise helps you. Muscle tensing stunts. Odd moment exercises.</p>	<p>54</p>

CHAPTER

PAGE

7 . . .	A RUBBER-TIRE GYM	63
	A no-cost home gym. Rubber chest weights. Chest weight exercises. A home rowing machine. Chest pull cables. A lively punching bag.	
8 . . .	YOUR BACKYARD GYM	75
	The basic gym unit. Materials needed. How to build it. Making bar bell weights. Making dumbbells. Pulley chest weights. A heavy punching bag. Making a medicine ball.	
9 . . .	A WORKOUT IN THE GYM	90
	Benefits of gym training. The hanging jackknife. The hanging scissors. The one-hand chin. Exercises for the high bar. Parallel bar exercises. Fireman's pole exercises. Chest weight exercises. Punching the bag.	
10 . . .	WORKING WITH WEIGHTS	102
	Legs carry the weight. Weight-lifting as part of a general program. Easy and basic weight-lifting exercises. The wrestlers' bridge and harder exercises. Dumbbells for lighter workouts. Don't overdo with the weights.	
11 . . .	BUILDING STRONG LEGS	115
	Every sport needs a foundation of strong legs. Exercises for developing the legs. Weak feet. Don't shirk the drills. Running. Jumping. Rope-skipping. Once in condition, walking will keep you there. Pick your own best exercise.	
12 . . .	ARM AND SHOULDER STRENGTH	128
	Strong hands and wrists needed in any sport. Don't "fool around" during practice time. Simple exercises that can be done any time. Knotty muscles not the best. Special exercises for the arm and shoulder. Big biceps not everything. Triceps development also important.	

Contents

ix

CHAPTER		PAGE
13 . . .	STRENGTHENING YOUR NECK	140
	Lou Little almost eats a shirt. Condition builds confidence. Variations on the bridge. Headstands help. Neck muscles must be supple as well as strong.	
14 . . .	BUILDING A STRONG TORSO	149
	Torso is a case housing vital organs. Strong lungs seldom fit in a hollow chest. Chest exercises. Flat, hard stomach the sign of a healthy body. Exercises for strengthening the abdominal wall. The army's Burpee exercise. How a coach kept fit. "No work, no win."	
15 . . .	THE SPORTS WAY TO STRENGTH	163
	Sports the modern substitute for pioneer exertions. Condition before playing any game. Rest and relax between sports seasons. Fit players less likely to be hurt. Practicing quickness of that first vital move. Exercise value of various sports. Once in shape avoid overwork and "going stale."	
16 . . .	SWIMMING YOUR WAY TO HEALTH	177
	Everyone's life may depend on ability to swim. Long supple muscles vs. bulging biceps. Water games. Swimming should not detract from proficiency in other sports.	
17 . . .	DEVELOPING AGILITY AND COORDINATION	186
	Mere strength not enough. Rhythm and timing in all sports. Exercises especially helpful in developing coordination. Balancing stunts. A home-built obstacle course.	
18 . . .	LIVING THE GOOD LIFE	199
	Watch your weight. Easier to keep weight off than take it off. Consult doctor if special diet is needed. Get plenty of sleep. Regular physical checkups. Bathing. Foot care. A daily program. Fitness for the good life.	



1. Physical Fitness

PHYSICAL FITNESS IS A COMBINATION OF SKILLS AND ABILITIES. A man with the bulging muscles of a movie Tarzan, or the stamina of a Marathon runner, may not measure up to the best definition of physical fitness. True physical fitness is the ability to perform ordinary muscular tasks without strain; it is the ability to perform extraordinary physical feats without injury to yourself; it is the ability to go along day in and day out at whatever your work may be without lapses because of sickness or poor health—yes, real physical fitness is all that, and it is many other things as well. It is important that you realize immediately that physical fitness is not a single element.

We all know that the tripod is the most stable foundation for any structure. The three points of contact enable it to settle firmly and solidly on any kind of ground—be it as corrugated as a washboard or uneven as a dirt road in spring. The quality of physical fitness is like that tripod. The three foundations upon which true fitness depends are health, strength, and endurance.

A strong man without health and endurance cannot accomplish what he should, because he needs too much rest. A man with great endurance, but no strength, takes too long to do a task. An under-developed man who is never sick may be healthy enough for an office job, but he is not truly physically fit, because he cannot weather emergencies where strength and endurance may be necessary.

A great many people are coming to realize the value of thorough conditioning. Our large universities have recognized the importance of the human body, and almost all these schools now have compulsory physical education courses for at least two years of the undergraduate student's career. Already there is a strong movement afoot to make it a four-year requirement. Soon, it is to be hoped, students will no longer come to our great centers of learning to feed their minds while starving their muscles. At any of the colleges where physical education is compulsory, you are likely to spy students banging away on the tennis courts, playing softball on the sports field, spiking a volleyball over the net, or otherwise busily and seriously engaged in outdoor activities. These students are working for their degrees out there—just as much as when they are carrying books toward classrooms.

The plan has a five-fold purpose as far as student benefit is concerned. First, it builds up their bodies through organized gymnastic work and calisthenics. In doing these exercises, the students learn what to do to keep themselves in condition later on in life. Second, everyone has to prove he can swim 100 yards. When you think that a great percentage of drownings occur because someone fell off a dock and could not paddle his way back to nearby safety, you see how important is this skill. Third, every collegian is required to participate in a minimum of two team sports such as football, softball, hockey, or volleyball. A fellow who has this experience learns the value of team work, can later appreciate the finer points of our major sports as a spectator, and gets valuable training in physical coordination. Fourth, the students must learn a combat sport such as fencing, boxing, judo, or wrestling, which may prepare them to take care of themselves in an emergency. And, finally, they become acquainted with two social recreational sports which they can continue to play throughout their lives after college to keep their bodies trim and taut. Among these recreational

sports are golf, tennis, bowling, badminton, handball, and horseback riding.

The purpose behind this new theory in education is to help keep that wonderful machine, the human body, functioning at peak efficiency throughout the lifetime of the individual. You can see that practically all of the exercises and activities given above are connected with the elements of play, fun, and competition. This is because it has been found that even athletes cannot maintain a high level of interest in routine exercise without some kind of game incentive added.

Most coaches seem to feel that drills or exercises in which the athlete can find no immediate purpose soon become tiring. Instead of helping the body, such exercises actually can harm the user by making him careless and indifferent in his performance. This theory is easy to believe. You know that a group of fellows can spend a week engaged in the hardest physical labor, digging themselves a swimming pool, or hauling logs for a cabin in the woods. They will not feel any particular strain or fatigue despite the fact that they are putting in long hours at it. But, if you made those very same fellows take axes and shovels and go through the motions of work without lifting any dirt or actually cutting any wood, they would begin to get tired in a few minutes. Try it yourself and you will find out.

Physical education authorities have found by experiment that such purposeless activity quickly exhausts the nervous system and tiredness sets in, probably more to protect the individual's peace of mind than his body.

This is not to say that you will build your body only by playing games which you like and doing exercises which appeal to you. A boxer, for example, will spend a great deal of time in shadow-boxing, whether or not he likes it, because he knows that this sharpens his reflexes and helps to make him a better fighter. A hurdler will spend hours on the turf, in the course of a season, just sitting in an "over the hurdles" position to stretch

his leg muscles properly. A football guard will devote much time and attention, even during his summer vacation period, simply to getting his muscles used to the crouched position of play. None of these activities can be classified as interesting in themselves, but for the greater eventual good involved, the athlete will do them without too much complaint. He knows he must do them if he hopes to achieve stardom in his chosen sport.

In this book, however, we will try to see that each exercise or activity must definitely have some practical value to you in your everyday life, as well as help you to achieve fitness for some particular sport. An ideal daily dozen drill routine should contain work which will make your body better for all purposes. An exercise such as chinning the bar is a good example of what should be included in the "daily dozen." It can be done almost anywhere and it develops your hands, arms, and shoulders.

Conceivably, some day your life might depend upon your ability to "muscle" yourself back up a ledge, or out of some similar dangerous spot. Chinning the bar helps to develop your fingers and grip, which is useful in the home in such ordinary situations as are already familiar to you. Have you ever had your mother bring you a jar of preserves and say, "Son, will you please open this for me? My hands aren't strong enough."

THE BENEFITS OF EXERCISE

The basic method for achieving physical fitness is through a sound program of correct exercising. The first benefit you derive from exercise is the increase of power. This is obtained by a gradual strengthening and building of the muscles.

The second help obtained from exercise is endurance. Endurance is the ability of your muscles and body organs to maintain an efficient output of power over a long period.

For a moment, let's look at what happens to your muscles

when you are taking one of your workouts. First they have to contract with enough force to get the work done. This muscular contraction squeezes blood vessels. When these blood vessels relax, the blood rushes into them at a greatly accelerated pace. Each succeeding constriction forces blood out of the vessels into the veins so that the blood may be replenished with power-giving oxygen from the lungs.

It happens that a muscle at work will contain 800 per cent more blood than when it is resting. Naturally, this helps to cleanse the muscular tissue and increases its fuel supply of oxygen. This is the primary reason why you need periodic exercise to keep your muscles purged and healthy, just as you need regular baths to keep your body clean.

When you work very hard over a long period, you will get tired, but this kind of fatigue will not occur as a result of normal exercising. Fatigue poisons will accumulate in the body when the work or play is so intense that the body machinery cannot cope with the physical consequences. You will be better able to fight off this kind of fatigue, and to recover from it more quickly, if you have already prepared your body by preliminary training.

The speed with which athletes recover from fatigue determines, to a large extent, the state of their physical fitness. The entire body should recover in about half an hour after a moderately played ball game, or a fairly stiff gym workout. In really strenuous activities such as a basketball game, or a hard tennis match, your muscles will have been driven much harder and only partial recovery is attained in a twenty or thirty minute rest period. This is why only a basketball or football team which has worked itself into superior physical condition can come out for the second half fresher, and last longer before getting tired again.

Now it becomes clear why a well-conditioned team will play an opponent on even terms for most of the contest, then in the

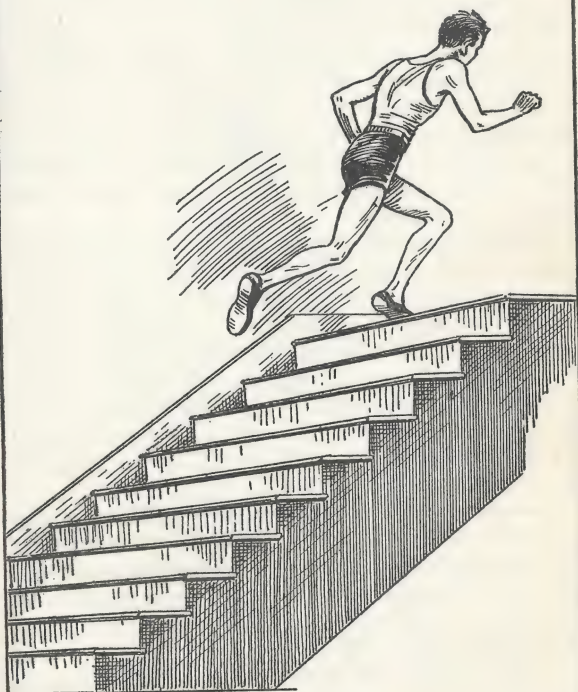
final minutes of play surge ahead in what amounts to a rout. Partisan spectators wonder "why our boys didn't wake up sooner and walk away with the game." Actually their boys were not any better, and could not prevail until their opponents had slowed down in speed, coordination and reflexes, because of fatigue. It is the same in boxing, football, track, handball, or any hard sport. In physical contact sports it can actually be dangerous to participate if you are fatigued, because the other team will be playing just as hard as ever, and you will be unable to defend yourself adequately. If your body has run down completely, the muscles will be unable to rid themselves of the fatigue poisons which have rapidly accumulated there, and you are licked. One reason why certain great basketball coaches turn out superior teams year in and year out is that they place great stress on physical condition. This is true of schools like Kentucky, C.C.N.Y., N.Y.U., Notre Dame and others which consistently stand high in national rankings.

SOME WAYS TO TEST YOURSELF

You can make a quick test of the state of your condition right now, if you wish. A flight of ten steps is all you need. Run up and down the flight three times, as quickly as you can, then take note of your breathing. It should be only slightly quickened without any heavy panting or strained breathlessness. If you find yourself panting or straining for breath, I'm afraid you have some work cut out for you in that department.

Many physical education investigators have spent years in study and research to devise accurate tests of human strength, agility, and fitness. Most of the tests worked out as a result of these studies are too complicated to be given by anyone but a properly trained authority who has easy access to timing instruments, strength-testing machinery, athletic equipment, and other hard-to-get devices. However, out of the welter of tests available, there are some pretty reliable methods of check-

***CAN YOU RUN A FLIGHT OF TEN STEPS
THREE TIMES WITHOUT PUFFING ?***



F.R.

ing up on yourself. Fortunately, most of these tests of physical fitness have some practical application, too. They are indicators of how good you are now, but they are also helpful as exercises to build you up even while you are testing yourself.

One test of fitness is traditional among any group of males, whatever their ages. A fat man is not a fit man, so whenever would-be athletes get together, you are apt to find them trying to touch their toes without bending their knees. You should be supple enough to touch the floor in front of your toes by leaning forward from the waist without bending the knees at all.

Agility can also be an index of your fitness. You should be able to make a standing broad jump which is equal to your height plus twelve inches.

Another stunt which will enable you to estimate your physical ability is the "wall jump test" which was very widely used by the Navy among its trainees. Stand facing a wall and make a mark as high as you can reach while standing firmly on your heels. Use a piece of chalk to do the marking. Then, without a run, leap up and make another chalk mark as high as you can reach. Take three such jumps and count the highest one. There should be at least eighteen inches difference between the standing mark and the jumping mark if your legs have the power they should have.

Some other tests of physical fitness are the ability to climb an eighteen-foot rope hand over hand without the use of the legs; chinning the bar at least three times; vaulting over a waist-high fence by placing only one hand on it as you leap; and climbing over a wall which is a foot higher than you can reach while standing on your heels.

These, however, are all informal methods of checking up on your condition, and I will tell you more about them in a later chapter. Right now, I want to give you one which is a surer indication of your actual organic physical condition. It was

WALL JUMPING TEST.
CAN YOU JUMP 18" HIGHER THAN YOUR REACH ?



A.R.

developed by Dr. Lucien Brouha, of the Harvard Fatigue Laboratory, and is called the "step test."

HOW TO TAKE THE STEP TEST

The step test utilizes the principle of making your body work by lifting its own weight. Every boy should take the step test at regular intervals to determine his fitness, and should do something to improve himself if the results are less than excellent.

Far too many modern boys are in poor physical shape. At a boys' camp during a recent summer I helped to make a general check-up of the condition of the boys. The results showed clearly that a large percentage of the boys were in extremely poor physical condition. At least half of the boys tested were dangerously weak in some portion of their physique. Some couldn't lift, others couldn't run, still others couldn't even chin the bar once.

Get a friend who is interested in building his body to help you take the test. It is simple enough to do, and you can keep a record of your physical improvement as your exercises begin to add muscle and to build up your stamina.

In taking the step test, get an eighteen-inch platform and stand before it. With your friend counting out a steady cadence "one-two-three-four" as in marching, you must step up on the platform with one foot, then bring your other foot up fully so that your knees straighten out as you stand upon the platform when he counts "two"; step back down with one foot on the count "three", and bring your other foot down to regain your original position at the count "four." This exercise should be maintained in a regular, even marching rhythm. You may swing your arms, or use any system you like in stepping up, so long as you maintain the pace.

Your friend must keep a watch in his hand and time you for exactly four minutes of such exercising. After four minutes, "time" is called and you sit down on the platform. Your friend

places his hand on the pulse in your neck and when he locates it, keeps his fingers there. He has a full minute in which to locate it.

Exactly one minute after you have stopped exercising, he counts the number of times your pulse beats in thirty seconds and calls out the number. Two minutes after you have stopped exercising, he counts your pulse beats again for thirty seconds and you write that figure down, too. Three minutes after you sat down, he takes a final thirty-second pulse count and that also is written down. These three figures are added.

To get your score divide this total into 12,000. For example, suppose the first minute after exercising, your pulse was 65 beats for thirty seconds; the next count was 60 beats; and the final thirty second count was 55 beats. This totals 180. Divide 180 into 12,000 and you get 67, which is your score. Your score when compared to the following table will tell you how fit you are.

A score of 50 or less: very poor physical condition.

A score of 51 to 60: poor physical condition.

A score of 61 to 70: fair physical condition.

A score of 71 to 80: good physical condition.

A score of 81 to 90: excellent physical condition.

A score of over 90: superior physical condition.

Take this test about once a month, and you will have a fair index of what your exercises are accomplishing for you. Also take all of your body measurements: neck, chest, abdomen, wrists, biceps, thighs, calves, height, weight, and so on.

No boy should embark on a strenuous program of sports and exercising, particularly if he is underweight or otherwise obviously out of condition, without taking the precaution of dropping in on his family physician for a thorough check-up. *There may be some organic weakness which would make it*

positively dangerous to do hard, vigorous work of this type, and your doctor will be able to advise you if there is any such danger. He would also have some good hints on diet. The question of proper diet is so often a personal matter that his advice in this respect will prove helpful.

As a general rule, it is a good idea for every boy to get a thorough physical check-up once a year. Thus, any incipient trouble can be nipped in the bud.

Never exercise to the point of exhaustion or try too hard to do a difficult stunt. You should only try to compete with *yourself* so that your improvement is a personal one. A younger boy, for example, should not expect to be as strong as his older brother, or to tackle the same kind of weight-lifting exercise.

2. *Posture and Power*

HAVE YOU EVER OBSERVED HOW YOU INSTINCTIVELY SQUARE your shoulders and straighten up out of your customary slouch when you meet an Army or Navy man? That is the psychological effect that a trim, erect figure has on most of us. We are prone to fall into evil habits in the matter of posture; slouching in our walk, slumping forward while seated, and otherwise contorting our bodies into unnatural shapes under the guise of "feeling more comfortable." Whether we admit it or not, this carelessness affects our bodies and our minds until it becomes a kind of disease.

One of the things which distinguishes a physically fit man or boy from his less-prepared fellows is good posture. One fall, I was at a banquet given for a successful football team. The speeches, as usual, were long, so I had plenty of opportunity to observe the people seated about me. It was easy to pick out the athletes from the rest of the group by the way they conducted themselves. Even an untrained observer could guess from the manner in which they carried themselves while walking, and the comfortable erectness of their posture in a chair that these were fellows whose physical training did not cease when they left the playing field.

Really good athletes continue their training into their non-athletic lives. They extend the benefits of correct exercise by maintaining good posture wherever they may be. A boy with erect upright carriage will generally have a healthy mental

attitude, too. It is hard to become nervous, depressed, or affected by your surroundings when you are carrying yourself well and are fully aware that you look well.

Then again, posture is vitally important to morale. Coaches feel that it is almost an axiom that you can identify by his bearing a boy who is in training. Today's athletic coaches have to keep up with a host of scientific and psychological findings in the field of sports. They must be constantly on the alert to take advantage of everything which might improve the physical and mental efficiency of their players. Consequently they are now stressing the value of good posture. They know that the very consciousness of good posture in a boy will help him to have a keener mind and a better body. Actually, you will find that you are giving important muscles some exercise all through the day simply by carrying your body in a correct, upright manner.

One writer on physical training has made an excellent illustration which describes the principles of good body posture. He suggested that we should consider the body a flag pole which is being held in an upright position by guy ropes. As long as it stands vertically, there is very little strain on any of the ropes. But, if the pole is crooked, or standing at an angle, more strain is placed on the ropes. This principle is exactly the same in the case of your body, if you consider that the skeleton is the pole and your muscles are the ropes which are holding it upright. It is easy to see that the muscles must perform a much greater amount of work to keep your body erect if you make a habit of slouching or stooping over. Why make unnecessary work for yourself? Learn to make correct posture a habit and use that extra energy for really worthwhile tasks.

It is also important that the feet provide your body with a firm base or foundation by being right in a line with the weight of your body. A Christmas tree will not stand up by itself on the floor of your living room. But, when you add the little

cross-shaped base to the bottom of the tree, it will stand firmly and securely. In a somewhat similar way, your feet form the base upon which your body stands. The reason the Christmas tree stands so securely is that the base is squarely under the weight of the tree. Your body will stand most securely if your feet are under its main weight at all times.

In most persons, incorrect posture tends to produce weak abdominal muscles. When these abdominal muscles are strengthened by correct exercising, it is easier to stand up straight. In addition to the benefit of better posture, you will benefit by ridding yourself of excess weight around the mid-body because fatty tissue does not accumulate around muscles which are in constant use.

All in all, it is pretty clear that one of the first steps toward building a good body is to learn the habit of walking and standing correctly, sitting properly, and carrying yourself in good posture at all times. Now, let us see what we can do to help you get better posture.

"Suck that middle in, throw out your chest, head up, pull in that chin!" Many a service man has heard these commands from the drill sergeant. New students at Annapolis and West Point have had them dinned into their ears so often that the lesson stays with them for life. You will never see a sloppy-looking West Pointer. It is not easy to "take" such peremptory orders from anyone, but it is important that you try. Surely, you can take them from yourself—if from no one else. Proper body carriage will conserve energy which slouching or other defects will dissipate. This fact alone ought to tempt you to pay someone to bark orders at you whenever you slip.

HOW TO CHECK ON YOURSELF

There are a couple of simple methods by which you can check up on your own posture. One way is to have your gym teacher do it for you by comparing your posture with the

Brownell Posture Scale. This is a series of silhouettes which show the various types of postures that boys are likely to have. By comparing your posture with these pictures, the gym instructor can show you what you look like, and you can see for yourself what you need to improve about the way you stand and carry yourself.

A second method is one which you may have heard about. We used to do it as boys. Its advantage is that it is a pretty reliable index to your posture, and you can do it by yourself. Simply walk up to a wall and stand against it with your toes and chest touching it. In this position, no other part of your body should be in contact with the wall. If your knees touch, straighten your legs. If your stomach touches the wall, suck it in or begin a series of abdominal exercises which will reduce its size and bring it in where it belongs.

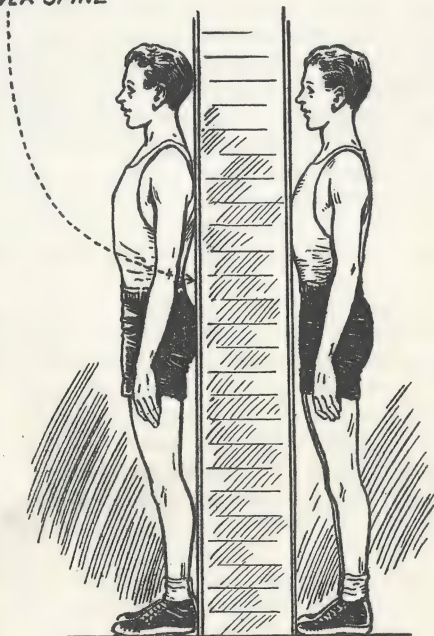
Now turn around with your back to the wall, so that your heels, buttocks, and shoulders are touching it. If your hand passes between the wall and your lower spine, your posture is good. The hand should have space enough to slide through without forcing your shoulders or buttocks away from the wall.

Remember that a cheap glove on the hand of a big league shortstop will stop more hard grounders than a super-deluxe glove on the hand of a novice. If, inside yourself, you have the worth, you can get more out of your body by willing to do it, than a stronger boy can get out of his if he has not the will-power to command himself. It is possible to train your will-power by doing those things which you know you should do, but which you don't like to do. One of these things is the habit of checking up on yourself constantly to make sure that your posture is correct. Observe yourself not only when you are standing, but when you are walking and when you are sitting in the class room. It is just as important to sit erectly as it is to walk erectly. Sitting correctly will give your internal organs more room, and will help your blood to circulate more

POSTURE TEST

HAND SHOULD
NOT PASS TOO
FREELY BETWEEN
THE WALL AND
LOWER SPINE

FACING THE WALL,
ONLY THE CHEST
AND TOES SHOULD
TOUCH IT.



R.P.

freely. Sit with your head up, shoulders squared, backbone straight, and feet out comfortably. In standing, keep your feet in line with the weight of your body, with chest out, head up, shoulders squared, and stomach in.

Most boys have a custom of *post mortem* criticism after one of their ball games. They get together and talk about what they should have done in such and such a situation, and at such and such a point in the game. During the game itself, they do not hesitate to tell each other what they are doing wrong in their batting, or pitching, or playing. This constructive criticism is a fine thing and should be transferred to things outside of the playing field. For instance, it would be extremely helpful in the matter of correct posture. If the gang, or at least one or two of your closest buddies, will go in cahoots and snap each other out of it whenever slouching or drooping begins to show up in any of you, you will soon find that a habit is formed. The time will quickly come when you will need no further reminders.

You will be passing shop windows all day, in which you can see yourself reflected. Use these shop windows to check up on your posture. Stop occasionally, see that your position is correct, and walk away trying to maintain that correctness.

Observation is another powerful force in shaping your learning. If you are lucky enough to have someone in school, or near your home, upon whom you can model your posture, do so by all means. I remember an Eagle Scout in my town. He had ambitions to go to Annapolis and was in training for it physically and mentally almost from the moment he entered high school. He was an agile fellow with a fine physique. He could touch the floor in front of him with his palms, without bending his knees, and could do other stunts which we smaller fry envied and tried to duplicate. Naturally we all tried to become like him, and one of the fortunate things for us was that he carried

himself erectly in a manly posture. Such an influence is hard to beat.

One of the most vital ways in which good posture will help you is that it promotes a feeling of strength and fitness. There are psychological tests which prove that if one really believes he is strong and can accomplish a given task or project, he can actually exert more power than he could under ordinary circumstances. These tests have shown that boys who felt they were strong were about thirty per cent stronger than they were in normal circumstances. Successful coaches of athletic teams have often applied these principles when they urged their teams to be confident and cocky. Since confidence radiates from good appearance, it is vital for you to cultivate it in yourself.

3. Stunts and Tricks

ALTHOUGH SIMPLE CALISTHENICS ARE VERY BENEFICIAL IN building up muscles, it is unfortunately true that they can prove very dull to the boy who is accustomed to modern high-speed competitive sports. This lack of interest can cause many a boy to dawdle in his gym classes, slacking during the setting-up drills or even actively rebelling against taking them. No wonder so many gym instructors are confronted with all manner of discipline problems. Yet, scarcely a minute after the drills are concluded and free play basketball, volley ball or some other competitive game starts, these same fellows will throw themselves wholeheartedly into the spirit of the contest and work violently and enthusiastically to the despair of the gym teacher who can't understand why this spirit was lacking just a moment ago. But the element of competition has entered into the exercising now, and everyone becomes vitally concerned about making a good showing or beating the other fellow.

It is not very hard to motivate red-blooded boys to swim, play basketball, punch a bag, or work at similarly interesting activities. But no cake is made up only of icing. Too often a boy will fail to realize that it is important to practice on certain fundamental techniques which would make him a better athlete. Even when those fundamentals involve such uninspiring actions as doing push-ups, you must think of the future value to your game. Do you want to be a star—then, think like one! A former

Washington Redskin football end, and assistant coach at Columbia, once told me that as a boy he was too under-developed in the upper body to participate in football. He did twenty push-ups morning and night religiously, in addition to a regular list of body-building exercises, until he developed himself to the strength needed for football. To most of us, it does not come without work.

I hope that you will be serious enough about your desire to build your body and to get yourself into top-notch physical condition so that you will not have to resort to subterfuge too many times. However, just to make certain that you will always have something interesting to do in the way of muscle-making exercises, I have planned a series of tricks and stunts which many athletes have used at one time or another as part of their training schedules.

There are many familiar tricks and stunts which you probably have not thought of in terms of body-building exercise. You can organize a regular routine of conditioning drills by using stunts with which you are already familiar. The headstand, for instance, which most boys know how to do, is a pretty good neck strengthener as well as a general all-round developer of the upper body. The simplest way to do a headstand is to make a tripod of your head and hands. This system provides a firm base from which you can lift your legs straight up into the air with confidence. In doing this trick, you will also be furnishing work for the muscles of your arms, shoulders, and torso. One fairly well-known boxer used to use this stunt as part of his training camp workouts, because he claimed that it provided better blood circulation.

Many famous athletes continue to use pet tricks or stunts for specialized development right through their playing careers. Pee-wee Reese, the fine major league shortstop, could not be classed a big man, but he had strong wrists and forearms. Much of his skill and quickness of hands in handling ground balls was

attributable to that power. He got himself the wrist development of a big man because of a trick he had, in common with a great many other athletes. He carried a rubber ball around with him and squeezed it for exercise. This strengthened his grip and helped to increase his hand span a bit. Some big league pitchers and all-American football players have used this method of hand development.

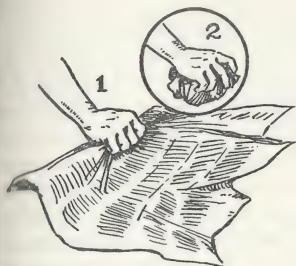
A few professional baseball pitchers learned to carry around with them an eight-pound shot (the iron ball used in putting the shot) for about fifteen minutes prior to a pitching assignment and picked it up occasionally in between innings of the game. Their theory is that the contrast in weight between the iron shot and the baseball makes the latter seem very light, as a result of which they can throw it harder without feeling strain. Be that as it may, there is not much doubt that such a trick will increase the strength of the hand and arm, and will have a favorable psychological effect on the athlete.

Another major league shortstop used a wrist developer which consisted of a spring attached between two sticks. The spring offered resistance pressure when he squeezed the sticks together. He squeezed this device as part of his program for building up his wrists and forearms.

PHYSICAL FITNESS WITH A NEWSPAPER

One of the most powerful football tackles in the history of Columbia showed me a neat little stunt which I want to pass on to you. He would take a large double sheet of newspaper and hold it by one edge. Using only the fingers of that hand, and without allowing the paper to touch any other part of his body, he would work it up with fingers and hand into his palm until he had crushed it into a tight compact ball. Try it yourself right now. See how hard it makes your fingers work, and how your forearm muscles wriggle and ripple as you try to bring the sheet of newspaper into your grip. I have since discovered,

PAPER STUNTS



GATHERING SHEET
OF PAPER INTO A
WAD. (ONE HAND)



PULLING ROLL OF
PAPER APART



TWISTING ROLL
OF PAPER.



JUMPING OVER
PAPER ROLL.

F.R.

incidentally, that there is a little trick involved in doing this stunt. If you are careful to squeeze very hard right at the outset when you start bunching up the paper, the wad will crumple tightly together and will be much easier to manage as you reach the end of the sheet. When you have learned to do it so that the paper sheet ends up as a tight compact ball, try doing it simultaneously with each hand. That is, have a double sheet of newspaper in your right hand and another in your left hand, and make a ball of them by working both hands simultaneously. The contest element may be introduced by challenging a chum to see who can make his ball first. In such a contest, be careful not to neglect that early tightness in your wad—otherwise you will simply have an unwieldy mess on your hands toward the end, and will not be able to get it to fit into your palm.

A mathematical computation gave me the clue to another method of utilizing a sheet of newspaper for exercising. Take a double sheet of newspaper and tear it in half. Bring the torn halves together by placing them on top of each other and tear them in half, too. Repeat this process until the stack of newspaper has grown too thick for you to tear, or too small in size to handle with your fingers. By the time you have torn it five or six times you will begin to get a workout for your arm muscles. This is a fine stunt for strengthening the grip of both hands.

These two tricks are samples of the kind which you can use to create a regular repertoire which would make your physical fitness drills a lot of fun.

An exercise which I mentioned before and which most fellows do is to touch the floor without bending the knees. As I pointed out before, it is a sign of poor condition if you cannot perform this simple stunt. I was profoundly impressed by our neighborhood gymnast who could touch the floor with the palms of his hands. Since then, I have seen many athletes

who could do this easily. Needless to say, they were all flat-stomached and hard as nails.

One of the favorite stunts of gymnasts is to lie flat on their backs, fold their arms across their chests, and get to their feet without the use of elbows or hands. This is an excellent form of torso development even though you may not be able to accomplish it in your first trials. Keep on trying it, because even your failures will be giving you the kind of exercise which you need.

CHAIR STUNTS

During World War II many old exercises were dressed up in new ways to make our fighting men stronger. Men like Jack Dempsey, Gene Tunney, Hank Greenberg, and thousands of other prominent sports personalities, coaches, and physical culture experts devoted their entire time to devising interesting physical conditioning programs. The wall jump test, which I described in the first chapter, was one of the results of their endeavors. Another trick they unearthed was dubbed the "right angle." It may be done right in your own room, but you will need a chair which has side arms. Sit in it, placing your hands on top of the arm rests, and lift your body until you are sitting on air. Now, raise your legs straight out until they are parallel to the floor and your body forms a right angle. Hold this position for a slow count of ten, let yourself down easily, and repeat. You will find that this exercise utilizes practically every muscle in your body and it is one which you can do almost any time, whether you are alone or not.

You can use the family kitchen chairs for several other stunts. One with which I enjoyed showing off as a boy was to pick a chair straight up into the air by grasping a front leg at the very bottom and lifting the chair right off the ground. You will find this very difficult unless you are lucky enough to possess exceptionally strong hands and arms. By starting with one of the

rear legs of the chair in your early attempts and selecting the lightest chair you can find, it is somewhat easier. Once you get the knack, however, you will be able to take hold of any leg and lift the average chair cleanly off the floor.

Another stunt is to sit on a kitchen chair and, without touching the floor with any part of your body, go completely around the back of the chair and get into your original sitting position. This is a feat for the supple-bodied to try. This type of gymnastic endeavor is good for your whole body.

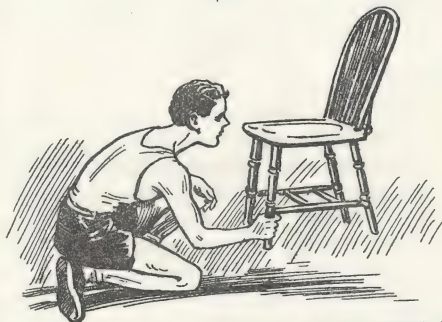
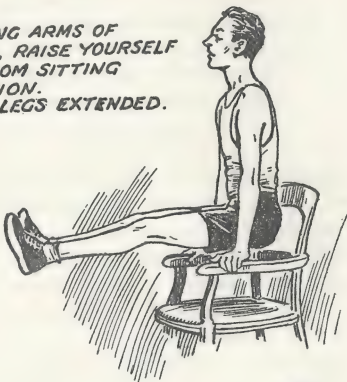
A third chair stunt makes some fine back muscles on the fellows who use it regularly. Stand with your toes two-and-a-half feet from a wall. With your feet close together, bend forward until your head is touching the wall. You should have a chair with its back right under your left shoulder. Grasp the back of this chair with your left hand and try, simultaneously, to raise the chair from the floor, your head from the wall, and your body into an erect position. You may not use your other hand to push away from the wall or otherwise help you to straighten out. It is a great form of exercise for your body, but watch out for your skull. Sometimes a fellow will do everything right except that he loses his balance and bangs back into the wall with his cranium.

By using two chairs you can do tricks which will furnish your abdominal muscles with some exercise. First, just try to stretch your body between the two chairs, with your head resting on the seat of one chair, and your heels on the edge of the other chair. Later on you can make it harder by putting weights on your stomach or chest to add to the strain which your muscles have to contend with. It might interest you to know that there is a three-year-old girl whose father has trained her to support a 45-pound weight in this manner.

A variation of this two-chair bridge is to place a third chair under your back, then remove it while your body remains suspended between the two end chairs. Lift this third chair over

CHAIR STUNTS

**HOLDING ARMS OF
CHAIR, RAISE YOURSELF
UP FROM SITTING
POSITION.
KEEP LEGS EXTENDED.**



ONE HAND CHAIR LIFT.

7R.

your body and replace it under your back on the other side of your body.

One thing which you must remember at every period of your muscle-building and training is that it will be valueless or worse if you do not coordinate the stunts and exercises with the playing of sports and games such as basketball, track, tennis, swimming, and so on. You need these games to give your muscles the suppleness and speed of reaction which they can only get in such a way. Do this and you can count on acquiring an all-around good physique. Over-concentration on muscle building alone can produce in you the condition commonly called "muscle-bound." It is a condition of muscular tension which prevents proper use of your body for useful work or for high speed athletic skills. It is easy enough to guard against, however, by taking the precaution of not overdoing work on any one phase of exercising or muscle building. A fellow who does only shoulder exercises will eventually overdevelop himself to the extent that he may find it impossible to throw properly, or even to get a shot close enough to his body to conform with the requirements of the shot-putting event.

MORE FITNESS TESTS

In many Y.M.C.A. calisthenic classes, a series of stunts is incorporated into the drills to make them more interesting, and also to show the participants what they lack in fitness. A high leap into the air with a double heel click is one of these maneuvers. Try it yourself! Simply jump as high as you can into the air, and try to kick your heels together twice before landing. Not too easy, is it?

A variation of this is to leap into the air and see how far around you can turn before landing back on the ground. Some really accomplished gymnasts can get around more than twice before getting back on *terra firma*.

Lou Little, the Columbia football coach, has a tough one

which he uses as part of his grass drills in conditioning a football squad. Here is how it goes. Kneel on the ground with your toes out behind you. Now, all you have to do is jump to your feet from this position without touching either hand to the ground. It is a great exercise for the calves and thighs, and helps you to learn how to regain your feet quickly. This kind of stunt helps a football player to concentrate his entire attention and vision on the play or the opponents in front of him without having to look at the ground.

Another stunt, rather simple, yet it is surprising how many boys fail to do it without practice, is the one-handed vault over a low fence or similar barrier. It is a reliable index of your physical condition, for you cannot consider yourself fit if you cannot do it. Place one hand on the bar and vault over it, using the combined force of your leg spring and your arm pull. If you can vault as high as your belt buckle you are in at least fair shape, but to be in really excellent condition, you should clear a bar as high as your armpit. You can begin learning by using both hands to make the vault, if a one-handed vault seems too difficult at first. Learn to do it either toward the left or the right at will. You never can tell when this skill might come in handy for getting out of the way of an angry bull in a farmer's pasture, or for some other emergency.

Learn to keep track of your accomplishments in all of these tests and stunts so that you can have a month-by-month record of your improvements. Thus you will know which portion of your anatomy needs special attention, and you will be able to devote most of your time to your weaknesses.

Here are some additional stunts which you can add to the list which I have already given you in this chapter.

The One-Legged Bend. Raise your right leg straight out before you and bend down on your left until you come to a full squat with your right leg stretched out before you. Now get up again without touching the floor with your hands

or right leg. Try the same with your left leg up in the air.

The Wall Spring. Face a wall at a sufficient distance from it so that when you lean forward you can rest the palms of your hands against the wall and thus support yourself from falling forward against it. Now, try to spring back into an upright position without moving your feet. If you can do it easily, move farther back from the wall until it becomes a real challenge.

A variation of this is to face the wall and place your forehead against it. Then spring back without the use of your hands or feet. Watch out for your head on this one.

The Heel Toss. Hold a ball or similar object between your feet or heels. Try to kick it backwards over your head with a jump so that you can catch it in its downward flight as it drops.

Handkerchief Pickup. Try to pick up a handkerchief from the floor with your teeth while standing on one leg. Use of the hands is not permitted in this trick.

Chinning. Chinning the bar is another body builder which is popular with boys. Any overhead pipe, tree limb, or awning support prompts a fellow to jump up and hang from it. Chinning is the basis upon which most gymnastic stunts depend. Every boy should be able to chin the bar a minimum of three times. This, of course, is for very small, light boys. A teen-age boy ought to do from eight to twenty pull-ups depending upon his muscular development. Much depends on your weight and age in this exercise. A fat boy will have trouble getting up three times, while a wiry-muscle, thin boy might do twelve easily. Whatever your score is, try to improve it.

One important thing to bear in mind about chinning is that you will benefit most if you learn to do it with your fingers facing away from your body. It is somewhat easier to pull up with your fingers curled back toward you, but when an emergency comes, such as hanging from a high wall where you have to pull yourself up or suffer a serious fall, your fingers

will, of necessity, be facing away from your body. So, learn to do it that way in practice.

All these tricks and stunts will form part of your body-building program. They are to be considered more as a sort of dessert than as the main dish. Your real work will be devoted to building up your weaknesses first, while keeping your stronger muscles toned up with sports and games.

4. *Your Portable Gym*

SOMETIMES SPORTS WRITERS WHO HAVE BECOME JADED BY THE sight of mighty sports feats will write a tongue-in-cheek article calling the athletes they write about by such pleasantries as "Gorilla," "Man Mountain," "King Kong," and so on. Readers of such articles or casual watchers of a team of powerful, highly-trained athletes in any sport may easily get the idea that these adept performers are just a bunch of mighty-muscled freaks. An untrained, poorly-conditioned observer may be misled into some envious statement such as: "Oh, they're just a bunch of stevedores and coal miners. You just have to be born with all that brawn to be good at sports."

When such an attitude is not a result of ignorance, far too often it is just a poor attempt at self-justification for a flabby body, for jelly-like tissue where there should be hard biceps, for an unseemly pot where there should be hard abdominal muscle, and for a wish-bone where there should be a backbone.

Actually, most athletes are not born with any mysterious power or ability. It is true that some people are fortunately endowed by nature with extraordinary vision, muscular coordination, or physical strength. But there are thousands upon thousands of authenticated cases in which boys have built themselves up from puny or sickly lads into robust, outstanding, world-famous athletes and personalities. A whole library of biographies could be written about such cases. Johnny Weismuller, Glenn Cunningham, William Talbert, Theodore

Roosevelt, and scores of other names leap to mind to bear out this contention.

Many of these athletes used home-made equipment to build themselves up. Some of them were ingenious enough to use what I call the "portable gym" idea. Let's take a quick look to see what we can do with this idea to help you.

Tricks With A Rope. Take such a simple, ordinary thing as a hank of rope. Every household will provide it. Yet, when you hold that length of rope in your hands you are actually in possession of a portable gym, capable of giving you all kinds of body-building exercises. All you need know is how to apply its many possibilities toward building muscles where you need them.

For instance, what is the most strenuous sport you can imagine? I suppose you are thinking of boxing, which requires highly concentrated efforts in bruising physical combat; or football with its savage body contact; or, perhaps, you remember that someone once described basketball as the most vigorous exercise which a man could indulge in short of actually fighting someone who was trying to kill him. Well, all these *are* strenuous sports all right, but an unspectacular, practically forgotten sport is as tough as any of them for sheer downright exertion. This is the tug-of-war.

It is an old sport which once was a favorite intercollegiate pastime, which proved so hard on the muscles and hearts of the contestants that it had to be abandoned. Although each tug-of-war contest lasts only a matter of minutes, the strain is much too great for ordinary men when it is played as a competitive team activity. However, the sport can be adapted to remove the element of excessive strain and make it a thoroughly healthful physique builder.

One way for you to use the tug-of-war idea is to get a six-foot length of rope and grip one end of it while an opponent takes the other end, each of you using your left hand. On the

ground, about three feet beyond each of you in the direction toward which he is pulling, there should be placed some object, such as a handkerchief. Now, all you have to do is to pull your opponent far enough so that you can reach down and pick up your handkerchief while you are trying to keep him from getting to his own. The player who reaches his handkerchief first is the winner.

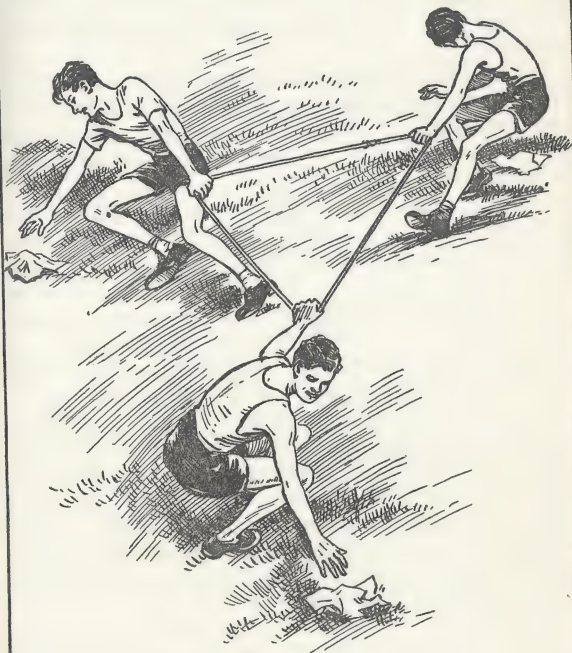
Since your opponent may be hurt if you release the rope suddenly, while playing this game in small quarters, it is best to tie a loop in each end of the rope and fasten it to your wrists. If you are playing in a large room, or outdoors, then you may just consider that letting the rope go will lose the contest for the one who could not keep his grip. This exercise, as you will quickly discover, is a fine way to strengthen your grip, as well as to build your legs and abdominal muscles.

Three or four players can do this same kind of exercise by making a circle of a somewhat longer length of rope and laying out the handkerchiefs in a wide circle. Here you will have to keep a careful eye on all of your opponents, for while you are concentrating on keeping one from reaching his prize, you may actually be allowing another to get to his objective. As before, the first one to grab up his handkerchief is the winner.

College football teams use a bucking strap which two men hold while a third player charges into it and tries to drag the holders along with him by the power of his momentum and leg drive. You can get pretty much the same effect with your piece of rope by trying the Volga Boatman exercise. Just tie one end of your rope to a telegraph pole, or some other immovable object, pass the other end of the rope over your shoulder and try to drag down the pole. Ridiculous? Of course, you can't possibly succeed in dragging the pole down, but the effort will certainly give your legs, stomach, and back muscles some hard work.

At a Boy Scout camp which I once attended we played a

THREE MAN TUG-O-WAR



popular game which was called "tractor pull." A rope was looped around the back of the neck and under the armpits of two players who were facing in opposite directions. They then got down on hands and knees and tried to drag each other across a dividing line which had been drawn between them. This was a swell way to get some competitive exercise for the entire body.

In all these tug-of-war games, strength counts for a lot, but speed and timing are also essential. For example, if you can catch the other fellow just as he relaxes for a moment, you will have no trouble in dragging him around before he can get another secure foothold.

You must remember throughout that the most beneficial way of achieving perfect physical development is to train specific sets of muscles by taking special exercises. You will get these special exercises in later chapters, in which I will deal in turn with different parts of your body. Right now, I am interested in showing you some of the unusual ways whereby you can get healthful exercise while you are enjoying the pleasures of friendly competition or doing interesting stunts.

You know that boxers who are in training will make great use of a rope for skipping. It is a wonderful exercise for sharpening your coordination and agility. It keeps you dancing on the balls of your feet and thus lends power and flexibility to your knees, ankles and hips. But, primarily, it develops your sense of timing. The muscles of the body must be coordinated to the swinging of the rope so that the wrists and arms also get some training in rhythm and timing.

Another natural activity which a rope brings to mind is rope climbing. During World War II many lives were lost because men did not know how to go up and down a rope. Reports from sea actions sometimes indicated that sailors could not cling to a trailing rope long enough to be hauled aboard ship out of the sea. Similar loss of life has occurred in burning buildings,

in falls down mountainsides, and in other situations where the ability to climb a rope would have saved the victim.

Rope-climbing is a fairly popular gymnasium activity, because it is known to develop an athlete's entire upper torso, including the abdominal muscles, as well as the shoulders and arms. In addition to that, it is one of the better methods for hardening your hands and strengthening your grip. You will be using your fingers and hands to hold your entire weight, and, since no one likes to take a fifteen-foot drop back to the ground, you will hang on even though it may hurt a bit. This effort, when you are tired, is the kind of exercise which does the greatest amount of good to your physical development.

Athletes who compete in rope climbing contests do so on a time basis. They sit with feet straddled on either side of the hanging rope and on a signal, pull themselves hand over hand up the fifteen- or twenty-foot-rope to the top. The record for climbing a twenty-foot-rope in this manner is something like six seconds from a sitting start.

Now, perhaps you begin to see that carrying a rope around with you is something like carrying your own gym. You can use it for many competitive games with your pals, or you can do solo exercises. This idea of carrying around a piece of physical training equipment is not unknown to the world of great athletes. Doc Blanchard, the famous Army football star of the early 40's, used to carry a football around with him constantly throughout most of his boyhood. It is said that his father gave him a football to play with when Doc was practically an infant. He certainly got used to carrying one, as his college records will attest.

Your hank of rope will also serve you in the following two exercises, which you can do at any time. The first one is to try to break the strong rope by pulling it with both hands across your chest. This furnishes ample work for your chest, shoulder, and back muscles.

The second exercise consists of letting the rope hang down as you hold it between the thumb and fingers of your hand. Now, gather it up into your palm by the use of your fingers alone. Get as much of it as you can into your hand, keeping your hand palm down at all times during the exercise. This is excellent work for the fingers, wrist and forearm of your hand. Alternate hands in performing this exercise, first doing it with your right hand, then with your left hand.

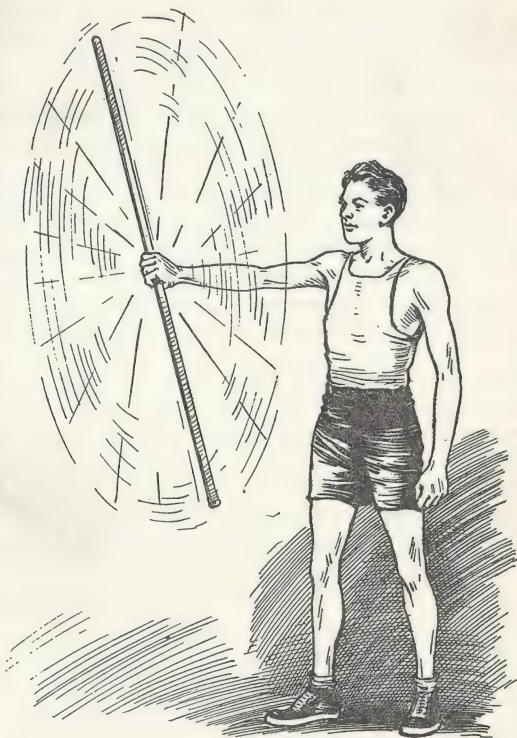
This should give you some idea of what can be done with a rope. Actually there are many other stunts, exercises and games which are adaptable to the rope, but many of them fit better into other chapters of this book. You will come across them from time to time, and you may make a note of them to add to your list of rope work.

Exercising With A Stick. Now, let's take another simple piece of ordinary equipment and see what we can do with it. Any boy should be able to get hold of a six-foot pole without much difficulty. A bamboo pole, such as is used inside rugs, is best, but practically any kind of pole will serve equally well. For many of the exercises, even a section of rake or broom handle will be quite adequate.

The first pole exercise is to grip the pole by the middle, hold it at arm's length and rotate your hand back and forth in front of you. The hand remains out in front of your body and twists as far as possible, first clockwise, then counterclockwise. See if you can actually make the stick hum audibly as it revolves back and forth. It is hard to do with a long stick, but you certainly should be able to do it with a piece of broom handle three to four feet long. This exercise will increase the strength of your grip, forearm, shoulder, and torso.

After you have become adept at this exercise, and it begins to seem easy, you can make it a bit tougher by gripping the stick somewhat off center and trying the same exercise. This will make the strain on your arm even greater and you will

MAKE THE STICK WHIR



7.R.

really have to have a lot of power to make the stick hum loud enough to be heard.

One of the principal purposes of beneficial exercise is to increase the blood's circulation, which gets more oxygen into the less-used parts of your body. This is something you want to achieve in addition to improvement of your physical structure. These exercises with sticks which I am now giving you meet the specifications of healthful exercise on all counts.

A boy who has strong hands and wrists possesses two of the most needed attributes for making good in most sports. Strong wrists are important in almost any sport which you can name: wrestling, boxing, basketball, baseball, football, or almost any other. Here is how you can make your stick serve you with good exercises to improve your hands and wrists. Grip it firmly in one hand and try to twist it in that grip with your other hand. This is one of the means of using your own strength to help build your physique. As you twist the stick you will feel your weaker hand begin to get hot under the friction of the turning stick. That is just what you want. It shows that the weaker hand is working hard to resist the pressure of the stronger one, and it also helps to toughen the weaker hand. The work of twisting the stick is shared, in part, by the shoulder and chest muscles, so this particular exercise serves a variety of purposes.

Man-to-man competition is always a spur to training, so if you can find a pal to grip one end of the stick, while you try to twist it in his grip, you will both be getting a workout.

To develop suppleness and power in your fingers, you can take hold of the stick near its top and hold it between your three middle fingers. Let the stick hang straight down toward the ground and "walk it up," that is to say, make it move straight up by the use of your fingers alone until its entire length is above your hand. By the time the stick gets more than half way

up, the problem of balancing it will add to your difficulties, because, if the stick swerves too much off center in any direction, it will become almost impossible to keep it from falling.

Throwing anything is a great form of exercise for your entire body. Throwing a javelin is an especially strenuous sport. You can toss your pole like a javelin to get this type of exercise out of it. Try tossing it first with the right hand, then with the left hand. You can throw it for distance, or set up a target at which you cast for accuracy. The primitive hunting instinct is still strong enough in most of us to make this an interesting form of fitness training. Incidentally, you will find that javelin throwing is pretty much like throwing a football for distance. It is said that one college coach, desperate for a man who could peg long passes, recruited the javelin thrower from the school track team. The javelin hurler soon was unleashing tosses of 70 yards.

You should be careful, however, not to overdo this exercise, or, for that matter, any other form of training in this book. Take it easy in the preliminary tosses, until your muscles are loosened up sufficiently to take the strain of your throwing effort without injury. It is much the same as in throwing a football or a baseball. You must always "warm up" before doing any hard throwing. Professional athletes take the precaution of limbering up their throwing arms, and you can always take a hint from a man who makes a career of throwing things.

Athletic coaches and physical instructors know that rhythm has an important place in the overall makeup of the successful athlete. You can readily see how important it is in football, for example, where timing makes or breaks a T-formation play. The same applies to basketball, where timing sets up pass plays under the basket. If you were to watch outstanding athletes in any sport, you would see that all of them, whether in high jumping, running, throwing, batting, or any other activity,

are helped by the development of a rhythm best suited to each particular event.

Try using your stick for long distance vaulting, and you will realize the importance of rhythm in getting good results. You will find that a smooth takeoff will get you far more distance in your vaults than a jerky, uneven one. The timing with which you plant your pole and the rhythm of your takeoff will pretty much determine the distance you achieve. Incidentally, pole vaulting for distance makes a fine exercise for your whole body. To do it, simply approach your takeoff mark on the run; with the pole held out before you, plant the end of the pole in the takeoff hole as your leading foot hits the takeoff mark, then swing your body forward in an effort to get as much distance as possible out of your forward leap.

Here are some additional stunts with your stick, which will enable you to increase your agility and suppleness. First is a stunt which you probably already know about. Take hold of your stick with your hands palm down and about two feet apart. Now, jump over the stick without letting it go. This is pretty good work for most of your body.

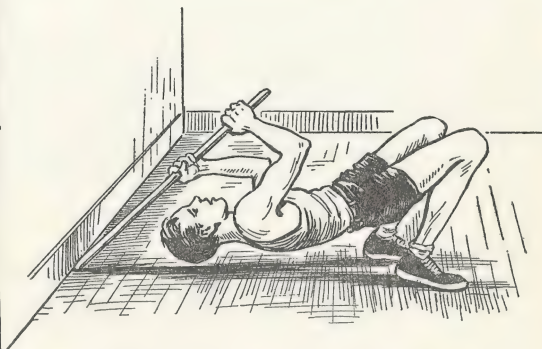
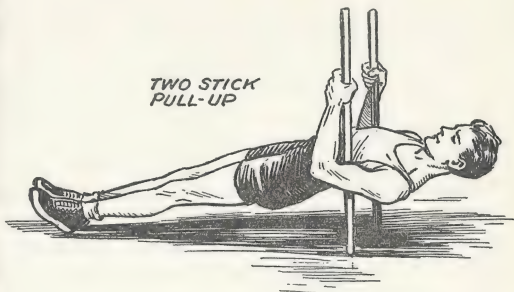
A low jump variation of this is to leave the stick lying on the ground. Bend over so that your fingers just touch it without lifting it off the ground. Now, jump over it without letting go of your hold or lifting the stick clear of the ground.

Next, there is the backward bend. Grasp the stick with both hands so that it projects straight up into the air in front of your face. At least three feet of the stick should extend above your head. Now, try to bend back far enough to touch the floor with the top end of the stick, which is extending above your head. This will certainly give your abdominal muscles a taste of what it means to be supple.

A stunt which furnishes work for most of your body is one which I call "the big stretch." Make a mark on the ground and stand behind it. With one hand, hold on to your stick, and,

STICK STUNTS

TWO STICK
PULL-UP



SWING DOWN, SWING UNDER AND
UP, WITHOUT TOUCHING THE FLOOR.

F.R.

with the other hand, hold a piece of chalk crayon. Supporting yourself above the ground by the aid of the stick, see how far out you can make a chalk mark on the ground before you, without touching the ground in any way except with the chalk and your feet. The feet may not move from their position.

There is a stunt which is guaranteed to loosen you up from scalp to toenails. It is called "skinning the cat" for reasons which I have not been able to figure out. The stick is grasped with both hands, palms down, and held horizontally out in front of the body. Now, you must lower it and step over it so that your hands are behind it. Without letting it go, maneuver the stick up your back, over your head, and back to where you started. You may have to twist your arms and hands quite a bit to complete the circuit, but you must not release your hold on the stick ends, if you want to get the maximum amount of benefit out of this stunt.

Another strenuous stick exercise is to take a hold on your stick with the left hand about a foot from the end of it and the right hand a foot farther along from the same end. Place the long end of the stick against the base of a wall and try to crawl your body under it and around back to your original position while maintaining your hold on the stick with both hands. You are not permitted to lose your grip or footing in completing this stunt.

Many Y.M.C.A. and athletic club gym classes use some of these exercises, generally without equipment. But, by having your own rope or stick, you can put some pep into them and have fun while you are doing your body some good.

This idea of getting in shape by making ingenious use of ordinary things to help you exercise is one which extends to a multitude of accessories. I have already shown you some uses for ordinary newspaper. Another fine exercise which a famous heavyweight boxer used, is to take a sheet of newspaper and tear it into little bits, dropping the pieces on the floor as they

are torn. By the time the paper is completely ripped up, the floor becomes quite untidy, to say the least. Now comes the exercise. The fighter picked up every last bit of paper by making a separate straight knee bend from the waist for each piece.

In his road work, this fighter jogged along with a rubber ball clutched in each hand. Not only would he squeeze the balls occasionally for better wrist and forearm development, but he would frequently toss them out ahead of him and pick them up on the run to get some additional exercise for his abdominal muscles.

If you have a baseball bat, you can use it for most of the stick exercises which I have given you. You can also use the bat as an Indian club for swinging exercise to develop grace of movement, good timing, and strength. It is also useful as a dumbbell for calisthenics, although two bats are better for this latter purpose. Anyway, you can see that you might do calisthenics while waiting for your turn to bat.

From some of the most ordinary things imaginable, it is possible to make a "home gym" which you can keep in your room or carry along with you on hikes or at play. There will be other ideas as we go along.

5. Two-Man Training

THE PRINCIPLE OF PERSONAL MAN-TO-MAN COMBAT HAS LONG been used by the American Indians, the native Hawaiians, the African tribesmen, and other primitive peoples throughout the world to increase their strength. By pitting his strength, skill, and stamina against his fellow tribesman, the warrior prepared himself for the rigors of existence in the wilderness.

Of course, personal combat sports were not confined exclusively to the savage or primitive peoples. From the time of the ancient Greeks, up through the Knighthood of the Middle Ages, right on down to the competitive sports of our own Twentieth Century the element of man versus man has stimulated the human male to exert himself more than he would in solo exercise. And there is little doubt that this element of competition is a healthy one so far as desire for achievement is concerned. Gymnasium coaches all over the country have had trouble getting their calisthenic groups interested in the bending exercises, drill work on apparatus, and other mechanical body-building gymnastics. Many of them, however, have discovered a magic incentive. As soon as they make a game of the exercise, it creates a new problem for them. The task is no longer how to interest the class, but rather how to keep it from becoming too enthusiastic, because everyone wants to get into the fun and to keep at it.

Let's take a look at some of the personal combat games which have come down to us from primitive sources. Most of these

ELBOW WRESTLING



WITH FOREARMS IN ALIGNMENT,
ELBOWS TOGETHER ON THE TABLE,
AND FEET FLAT ON THE FLOOR, THE
CONTESTANTS CLASP HANDS.

F.R.

friendly combats are admirably suited to your purposes because it is fairly easy to find a friend who is approximately as strong as you are, and to use him as a partner in practicing these contests.

Toe Wrestling. First let's try a contest called toe wrestling. The combatants sit on the ground facing each other, with their knees drawn up against their chests and their arms locked around their knees. A stick may be threaded under the knees and over the inside of the elbows of each contestant, although this is not absolutely necessary. When you try it, sit facing your opponent with your toes touching his. The object of the game is to push him over on his back by getting your toes under his and lifting up to force him over. If you release your hold around your knees, it is a foul and loses the bout for you. Besides being a good exercise, this is a lot of fun.

Indian Wrestling. Indian wrestling comes down to us, as its name indicates, from a game which was quite popular among the young bucks of the American Indian villages. They would lie side by side on the grass, with heads facing in opposite directions. The right legs were raised and lowered twice, ceremoniously, as a sort of "get ready" signal, and, on the third lift, the wrestlers would lock legs and try to force each other's leg down to the turf. As you will see when you try it, if your leg is forced down by your opponent, it will roll you over from your place. The one with the strongest leg and abdominal muscles would win, but the loser gained the benefit of the exercise, and soon the winner would find it more and more difficult to defeat the same opponent.

Elbow Wrestling. This is a game which many boys have already learned in the course of impromptu tests of strength among themselves. For the benefit of those who have not heard of it, this is how it goes. Two boys sit at a table facing each other. Their elbows are placed on the table top about a foot apart, and their hands are clasped up in the air with the fore-

arms straight up in the air. The object of the game is to force your opponent's arm back and down so that the back of his hand touches the table top.

The Hawaiian lads play a variety of this game by kneeling on the ground and trying to bend the opponent's arm so that it touches the sand of the beach. This helps to furnish exercise for the torso as well as for the arms and shoulders.

Hand Wrestling. Hand wrestling provides a fine workout for every muscle in your body. To play it, take a firm, comfortable stance somewhat as you would for fencing, with your right foot up against the right foot of your opponent. Clasp hands as though you were shaking hands firmly, and try to force your opponent, by pushing, pulling, or jerking his arm, into breaking his stance or into falling on the ground. If you can maneuver your rival into a low position and then suddenly whip up his arm over his head, you can sometimes spin him cleanly off his feet so that he lands flat on his back or in a sitting position. However, you must remember that some fellows can get a very firm footing from a low stance and might be luring you into getting off balance yourself.

In one Hawaiian Island version of this game, only the index fingers are interlocked and the contest resolves itself into a kind of tug of war. The player whose finger gives way, or who is forced out of his stance, loses the contest.

Gymnasium instructors have their own pet versions of all these "two-man combat" games. A college wrestling coach gave me the following games which he recommended highly as body builders.

Cat Fight. In the cat fight, both opponents clasp their ankles with both hands and try to buck each other over by butting with the shoulder, hips, or sides. Walking is difficult in this stance, but you must always maintain your grip on your ankles, for, if you release your grip or fall over, you are the loser.

Break The Grip. This is a simple enough contest. It is one of those stunts which you can do with your hank of rope. Each player takes hold of a three-foot length of rope and tries to get it away from his opponent by yanking or pulling. Use both hands to hold the rope and grip it near the end. Since it is permissible to move about in this game, you will find that the struggle affords you a great deal of exercise for your entire body. It also works wonders in toughening the palms of your hands and in developing your grip.

Hog Tying was the wrestling coach's adaptation of a popular Western Rodeo event, in which a cowboy wrestles down a steer and ties its legs. In this game, each contestant is given a piece of rope, and the only objective is to tie the opponent's feet together while keeping your own from being tied. A knowledge of wrestling will help enormously in this wild game.

In *Stick Wrestling* one fellow takes hold of a bat near both ends, while his friend does likewise, getting a grip right near his opponent's hands. There is not much to tell about how to play it. Just try to get sole possession of the stick, but, in the course of wrestling, jerking, pulling, twisting, and hauling on that stick, each of you will be developing practically every muscle in your bodies.

For agility afoot and better all-round coordination, take that same bat or stick and set it upright on the ground, keeping it in that position with a finger tip on top. Have your pal stand six or eight feet away, and, when you call "now," release the stick so that it will topple over to the ground. His duty is to get to it and catch it before the stick falls flat on the ground. As soon as he succeeds in doing that, it is his turn to balance the stick and your turn to try to catch it.

You can vary the game by having him start a foot away from the upright stick, and put him back another foot each time he makes a successful grab. As soon as he fails to catch

the stick before it topples to the ground, it becomes your turn to see how long you can keep it up, going back a foot each time you are successful.

The trainer for a professional football team offers this advice for strengthening your leg joints. His men are always getting banged up, and occasionally one of them will come up with a serious leg injury which necessitates plenty of exercise for redeveloping the leg muscles. The favorite exercise in such cases, and it may be used in any instance where strength of leg joints is desired, is a two-man stunt. To do it you lie on the flat of your back with one leg pulled up right against your chest. Have a mate lean forward against that foot so that his entire weight is resting against it. Now, you do your best to straighten your leg and push him back up against the pressure of his weight. Since leg muscles and joints are always in danger in baseball, football, basketball and other competitive sports, it is wise to do some work on this exercise if you are an athlete.

It is vitally important for boy athletes to devote some part of their athletic practice time to physical development exercises such as those listed in this book. There is no doubt that you can have more fun in a scrub game, but if you really want to rise out of the ranks of the ordinary scrub and make the varsity, you must be willing to make this minor sacrifice. A varsity player should also put in time on body building because it will help to make him a star instead of an ordinary player. Even a star player will benefit, because such exercising will keep him playing day in and day out at peak performance.

The tug-of-war makes an excellent exercise, as I have already pointed out. You can make more of a game out of the tug-of-war with these stunts.

First, try *Poison Snake*. A small length of rope, placed on the ground between you and your training partner is the "snake." The two of you join hands over it and try to make

each other step upon it. The one who touches it in any way is "poisoned" and out.

The game of *Pick Up* is a miniature tug-of-war with only one man on a side. Each player grips a short rope near the end, with his left hand. On the floor, six feet beyond the reach of each player, is a handkerchief or other object which is fairly easy to pick up. Each tries to pull his opponent over far enough so that his own objective is within reaching distance. Letting go of the rope loses you the game.

Boundary Tug is a variation of this game in which there is a line drawn between the two players while each tries to pull his opponent over that line.

At camp or Scout meetings, boys usually are taught a great variety of personal combat games. *Rooster Fight* is a popular one. Each player hops on one foot, holding the other foot with a hand and folding the other hand across his chest. The object is to buck the other player into releasing his hand grip on his foot, or to topple him over.

Back Lift is a fine workout, too. Stand back to back with your arms interlocked, and try to lift each other completely off the floor. The one who succeeds is the winner.

The thighs, back, and neck muscles can be exercised by playing a game called *Tractor Pull*. Two players get down on all fours, facing each other. A belt or strong folded cloth is tied in a large loop and passed behind the head of each boy. Now, they try to pull backwards so that the opponent is hauled across a dividing line drawn between them. If the belt slips off a player's head, he loses, for that generally indicates that the player's neck muscles were not strong enough to withstand the pull of those of his opponent.

Another football training stunt is to take two players and face them off in a lineman's stance, except that their hands are placed on each other's shoulders. The object is to break through your opponent's hands and get your shoulders against

his body. You will find this a good stunt for development of foot agility and body coordination.

McCloy, an authority on physical education, has developed a plan for showing whether a boy is above or below the average of his age and weight group in athletic ability. He has found that four track and field events can determine pretty accurately the athletic quotient of a boy. The four events consist of a run, high jump, broad jump, and a weight throw, which serve to measure the total ability of a boy in track and field.

Since this is so, it seems logical to assume that you cannot afford to neglect any of these types of exercise. For instance, if you are a sprinter or high jumper, you must not neglect shot putting or discus throwing if you want a well-balanced physique and all-round athletic skill. By working with a friend on these events, you can boost your marks because of the fact that you are competing against someone. But try to balance up your competition by allowing a handicap where it is needed.

For instance, if you can put the shot 33 feet while he gets only 28 feet, let his starting line be five feet farther out than yours. Do the same with your sprints, and jumps, and adjust the handicap as the weaker one improves. You will find that this sort of handicap contest will cause the stronger one to put forth greater efforts to keep ahead of the weaker competitor—who can beat his rival by trying hard enough.

6. *Muscle-Tensing Exercises*

ONE OF THE WONDERFUL THINGS ABOUT EXERCISING IS ITS EFFECT on your morale. If there were no other benefits, you should still exercise diligently and regularly, because, as your body develops, you will begin to get more and more confidence in your ability. First of all, you will have more self-assurance because you had the strength of character to stick to a program of conscientious body-building work. And this self-assurance is bound to be reflected, not only in your immediate athletic activities and skills, but also throughout your later life. A fellow who is in shape and knows that he is prepared to tackle anything is over the first hurdle on his way to sports success. He does not have to spend time strengthening himself, but can plunge right into the job of perfecting the techniques of his sport.

The human body is a wonderful instrument which few of us understand. One of the things which you may not have known about it is that you can harness your own body to help in the job of building itself. I mean exactly what I am saying: you can harness your own strength to make bigger muscles for yourself. This knack of using your own strength for physical development is a device which is well known to physical culture experts. Some of them have founded their entire systems upon it alone.

In many a football training program, for example, you will run into a variation of a calisthenic drill which employs this

principle of muscular tensing. If you try the drill it will help you to understand the idea. Bend to a squat somewhat like the crouch used by a baseball catcher as he prepares to receive a pitch. Place your right hand on your shin just below the right knee, and exert leg pressure in an effort to move the foot forward, while you are trying equally hard with your hand to keep it from moving. Thus, you will be using the muscles of your thigh and calf to compete with those of your arms and back.

This kind of exercising is easily adapted to the baseball diamond, too. For instance, just sit down on the turf and try to break a bat across one knee, then across the other, by placing the fat part of the bat against the knee and pulling toward you with both hands. Then try the same by placing the fat part of the bat against your thigh and pushing it away from you as hard as you can by putting your hands on the bat just six inches to each side of the spot where bat meets your leg. This is a wonderful exercise for your back and arm muscles, for your abdominal muscles, and for your thighs. When you get to the point where you can break a bat at the part where it is thickest, you may consider yourself strong enough, and you needn't bother with this particular kind of workout any longer. Indeed, you may join a circus as a professional strong man.

A variation of the above exercise is to stand in a slight crouch with the bat against your buttocks, and try to "lift" yourself off the ground." This attempt to hoist yourself up into the air is doomed to failure, of course, unless you can get the law of gravity repealed. Nevertheless, the effort will do your arm and shoulder muscles a world of good and will also help to strengthen your back and chest muscles.

While pitting your muscles against each other is a good way to make them grow, you can also try pitting your muscles against the weight of your body. Rowing is a healthful sport,

so you might like to know about a method which permits you to practice it at home. Like the proverbial postman who takes a hiking trip on his vacation, the lads who row on college varsity crews just naturally seem to gravitate toward the rowing machines in the gym. It is not easy to get at a rowing machine if you don't happen to live near a well-equipped gymnasium, but you can approximate its effects by seating yourself on the floor, tying a rope to a strong support in front of you and using the rope to pull yourself forward after bending far back. Bring your body up slowly to get the maximum amount of benefit for your back and abdomen.

HOW EXERCISE HELPS YOU

The laws of exercise are as stern and unbending as the laws of physics. In general, as you repeat a certain kind of action over and over again, it becomes more and more firmly established as a habit and is performed with greater and greater ease and certainty. The oftener you execute some skill correctly, the catching of a baseball, for instance, the more likely it becomes that you can do the same thing under the "combat conditions" of a real game. In the same way, the more you make a certain muscle perform a strenuous activity, the more likely it is that the muscle will become accustomed to it and will eventually find it easy.

The laws of exercise, with which your coach and physical education director are familiar, include such components as frequency of practice, recency of practice, use of acquired skills, and disuse of skills—but, what they all add up to is the inescapable conclusion that the fellow who practices conscientiously, under proper guidance, will increase his grasp of the fundamental skills of his sport and will improve the physical well-being of his body.

Muscle tensing is one method of training your body, but

when I say that you can improve your physical condition by tensing your muscles or using them to work against each other, I don't want you to understand that muscles should be kept always in a state of tension while you are engaged in sports activity. Quite the contrary! You should relax your muscles in all sports whenever possible. It will decrease chances of injury and increase your efficiency in the game. One reason why athletes warm up before a game is that they want their stiff, unused muscles to relax and limber up for the strains which may be imposed upon them. When you practice the muscle tension exercises which I am giving you in this chapter, you should remember to do considerable work on your agility training at the same time. The muscular opposition exercises will tend to make your chest larger, your biceps dimensions greater, and so on. But this improvement must not be made at the sacrifice of speed or freedom of movement.

I know a weight-lifter who spent so much time on building his muscles that he ruined himself as a shot-putter. He increased the size of his shoulder and biceps muscles so much that he was unable to hold the iron shot in the proper position for making the cast.

MUSCLE TENSING STUNTS

I mentioned the value of twisting things for development of your hands. You can oppose your right hand against your left for one such exercise. First, grip your left wrist with your right hand and try to twist it around while opposing the twisting motion. Then reverse the exercise by twisting the right wrist. This is a fine workout for both hands and arms, and will harden your wrists and fingers. Vary this by clasping your hands together and twisting them hard to see which hand will give way.

For developing your fingers, wrists, and upper arms, place your finger tips together and press hard against them. You will

feel the strain way up in your chest muscles, too, if you are making a genuine effort.

A great chest expansion may be achieved by practicing the following two exercises for a few minutes each day. First, clasp your hands together and try to push your palms right through each other, keeping your elbows straight out at the sides of your body. Do this in short spurts of a few seconds' effort at a time.

Next, clasp your hands and try to pull them apart while holding on as tightly as you can. This is really a great developer for the pectoral muscles of your chest and for the muscles at the back part of your upper arm.

Your neck ought to receive some attention, too. Placing a hand against your forehead and pushing your head against this pressure will help to build strong neck muscles. Next, clasp both hands behind your head and pull forward while pushing back with your head. Finally, work from the right and, then, from the left side of your head with pressure against the palm of your hand. A little of this work goes a long way, so don't overdo it. A few seconds a day ought to be enough if you are getting the other outdoor exercise which a healthy boy needs.

Fencers have an exercise which is quite trying, yet gives them the powerful hand grip which they need to keep hold of the foil in the fast, slashing sword play. They hold their hand out before them and slowly squeeze the fingers together over an imaginary ball. If done with real power and repeated for fifty or sixty times, as they do it, you will find that it tires the muscles of your fingers, wrist, and top forearm. Do this with your left hand as well as your right.

Standing erect and tensing the stomach muscles by sucking them in and bracing them against your tightened belt is a good exercise, if done in moderation. All of these exercises, I want to repeat, should be taken in moderation, for no genuine lasting good can come from overconcentration on one type of

PULL AGAINST YOUR HANDS



***CLASP HANDS OR HOLD WRIST AND
PULL WITH ONE HAND WHILE RESISTING
WITH THE OTHER. AFTER A FEW PULLS
REVERSE THE GRIP AND PULL AGAIN.***

F.R.-

calisthenics or exercising. An all-around development is necessary if you want to be really fit and healthy.

Wrist passers in football, such as the record-breaking Sammy Baugh of the professional Washington Redskins, depend upon the power of their wrists for the rifle-like speed and accuracy of their pegs. Wrist hitters in baseball, such as Paul Waner, who amassed a tremendous total of base hits in his great baseball career, also need strong wrists. Basketball players also need strong wrists for passing and shooting. In any sport you can think of, the probability is that you will need a good pair of wrists and hands. The exercise which the fencers use is one good way of starting on the road to achieving a pair of strong forearms and wrists.

The leg muscles may be strengthened by pitting other parts of the body against them. Of course, gravity helps a lot in leg development, because they are supporting you all the time you are walking, but you can make it even tougher on them than Mother Nature does with her gravity.

For instance, you can sit down, bring your leg up under your chin, placing your clasped hands across the arch of the foot, and try to break your grip by pushing out with your leg.

Just standing and flexing your thigh, calf, and foot muscles is also a helpful exercise.

The back muscles are also included in the muscle tensing system of exercising. A high school coach who was in the Naval physical training program during World War II suggested a muscle tension exercise with a stick or bat which would provide ample work for your back muscles. Grip the stick behind your back with your hands apart, stand erect in good posture, and push your arms straight back and up as high as you can. You will feel considerable pressure and strain on your back muscles, which indicates that they are getting exercise. This can also be done without equipment by simply clasping your

hands behind your back before trying the lift. This is the same principle used with chest weights in a gym when they are pulled straight back from a standing position, except that you are using only your arm weight.

The principle of muscle tensing may be utilized in practically any sport for muscle making. There are characteristic techniques and actions in golf, baseball, football, and all sports which you can imitate without benefit of equipment as a form of exercise. In these you might follow the example of many great tennis players who developed their arm muscles by going through forehand and backhand strokes for an hour at a time without actually swinging at a ball. The football punt is another fine exercise—even without a ball. The baseball pitcher's throw, the golfer's swing, and the swimmer's motion are all fine examples of natural swinging exercises for your entire body.

ODD MOMENT EXERCISES

Develop a simple training program for yourself by using these exercises, and you will find that you can use them at off moments to help round yourself into good physical shape. This, in a nutshell, is the greatest value of this type of exercise. You can do them anywhere: in your room, at a ball game, even sitting in your classroom. No one would notice much if you clasped your hands together and pushed against them; certainly no one would note at all the fact that you strained your stomach muscles against your belt or sucked them in; or flexed your leg muscles under the cover of your trouser legs, or clenched your fist a few times. You might be sitting with the gang in the local hang-out, or before a campfire, but you can take the occasion to get in a bit of quick exercise for most of your body. You could do it simply by clasping your hands around your knee in a perfectly natural gesture and straining to pull the knee toward you while pushing away with the knee.

This struggle is so unobtrusive and the position is so common among boys that I am sure no one would be the wiser. I am not advocating secrecy in training, I am merely pointing out that these muscle-tensing drills have the quality of convenience which is lacking in most forms of exercise.

7. *A Rubber-Tire Gym*

YOU POSSESS PHYSICAL POWER IN YOUR MUSCLES, BUT, TO USE this power effectively, your muscles must be properly developed and kept toned up by the use of different types of exercise and work. Nature has endowed some of us with superior muscular equipment. There are fellows who are as strong as oxen, purely as a result of their physical inheritance. Yet no boy will stay strong and healthy, or grow up to become a powerful man, without doing work or taking exercise.

There was a lad in my home town who came from a family of magnificent physical specimens. His three brothers were barrel-chested individuals, well over six feet tall, with great rippling muscles. This particular fellow was proportioned along the same generous lines as the rest of his family, but somehow he never became as powerful as his older brothers. He was a bit lazy, and didn't like to make any physical effort or to take part in any strenuous games. So his muscles never had the chance to develop as they should have done. Unlike his healthy brothers, he was prone to fall easy victim to all sorts of maladies and illnesses, missed much of his schooling, and was actually a weak, sickly boy despite his bulk.

On the other hand, his oldest brother had one of the most splendid natural physiques I have ever had the pleasure of seeing, and, coming from a coal mining town, I have seen quite a few well-built men. This fellow owned all sorts of weight-lifting and gymnastic apparatus and took pleasure in using it.

Mind you, I don't say that his strength came solely from development work with chest weights, dumbbells, and bar bell weights. He was born with a good body, and just increased his natural strength by participating in all sorts of competitive sports and working regularly at gymnastic activities. He was so powerful that two or three of us could not put him on his back in friendly scuffles. Yet, he was so good-natured that I never saw him even get into an argument on the football field or basketball court.

So, while he was blessed with great natural power, I know that he did improve his body and coordination by his keen zest for sports and exercising. He wasn't careless enough, as his brother later proved to be, to let his wonderful, natural strength rot away by neglecting to use it.

I realize that not all boys live in communities which have gymnasium facilities, and that many boys cannot afford to buy dumbbells, chest weights, rowing machines, punching bags, and the other paraphernalia found in the well-equipped athletic gym. I have enough confidence in the natural ingenuity of the average American boy, however, to believe that he can make for himself whatever equipment he lacks. One of my boyhood chums, a stocky French lad, managed to make an excellent home gym for himself at no expense whatever. The gang in the neighborhood athletic club to which we both belonged, used the gym in his barn to good effect on many a Saturday afternoon and weekday after school.

All of the principal exercising machines in his barn gym were made from a couple of old tire inner tubes. You can duplicate this equipment for use in your own room or attic gymnasium.

First I will give you the specifications for his version of "chest weights." He cut two long strips of rubber from an inner tube, making each strip about two inches wide. When you are making your gym equipment from rubber inner tubing,

you must stretch the section which you are planning to use and examine it carefully to see whether or not the rubber is excessively porous or full of little pinpoint holes. If it is, then you had better use another section of the tire, or another piece of rubber, for those pinpoints indicate that the rubber is rotting and weak. A few stretches will cause such rotted rubber to break.

Cut the rubber strips in long, smooth cuts to avoid indentations along the edges of your strip. Where you have such indentations or jagged edges, the rubber is apt to become weak or have a tendency to tear or split at the point where the nick occurs.

RUBBER CHEST WEIGHTS

My friend used two long strips which he fastened to the cellar wall at shoulder height. The rubbers were a foot apart. The other ends of the strips were tied around the center of short lengths of broom handle which could be easily gripped.

If you make one of these contraptions, you can use it for scores of chest weight exercises by gripping the broom handles and standing away from the wall far enough so that the rubber is just extended, but not stretched. The standard chest weight exercise for toning up your body is to begin by standing far enough away from the wall so that the rubber is just slightly stretched as your hands are held at your hips. Raise your hands over your head on the count of "one," and bring them down to your toes on the count of "two"; straighten up with your hands directly before you on the count of "three," bring them out to the sides on "four," back in front of you on "five," and down to the sides on "six." Repeat this six-count pattern, keeping your elbows and knees from bending during the exercise. Work at a deliberate tempo—not too fast—so that your muscles will have to strain against the natural elasticity of the rubber.

As you grow stronger, you may increase the width of the rubber strips for added resistance, or add another strip to each side.

Pulling chest weights acts a lot like doing push-ups in the effect on your muscles. You are fighting the resistance of the cables in the chest weight pulling exercises, which helps to develop the muscles of your upper body. Remember this exercise when you read the chapter on Torso Development.

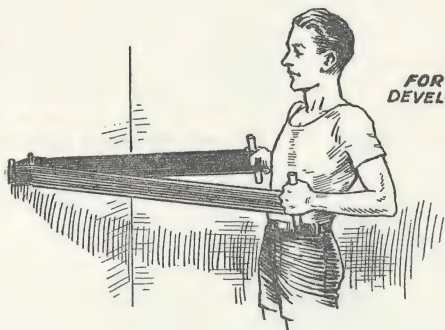
Another chest weight exercise is to stand facing away from the wall, with the broom handles gripped in your hands, while you assume the stance of a boxer. Now, punch straight out, first with one hand then with the other, letting the triceps muscles in the back of your upper arm strain against the pull of the rubber cables.

A third exercise is to stand facing the wall and hold the rubber cables over head so that there is considerable stretch in the rubber. Keep your feet somewhat apart and bend your trunk with both hands kept together. Touch first your right foot with both hands, raise back to the hands-over-your-head position, and repeat the bend, this time touching the toes of your left foot with both hands. Repeat this exercise twenty times, alternating your bend between your right and left feet.

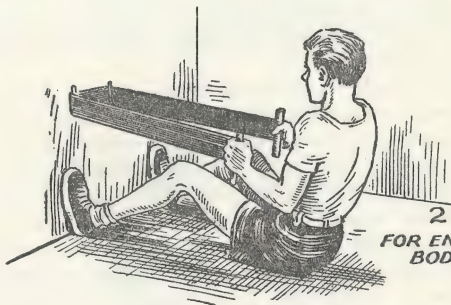
If you cannot obtain a rubber inner tube you can still make chest weights by using heavy pieces of metal or rocks, tying manila rope to them and bringing each rope over a smooth broom stick fastened parallel to the ground at shoulder height. Tie some form of grips on the other ends of the ropes so that you can hold them easily. These primitive chest weights will serve you if you cannot get pulleys to make the ones described in the next chapter.

A Home Rowing Machine. To make a tire tube rowing machine, you simply fasten the same strips of rubber at a lower height on the wall. Since you want more resistance offered to

RUBBER TIRE EXERCISES



1
FOR CHEST
DEVELOPMENT



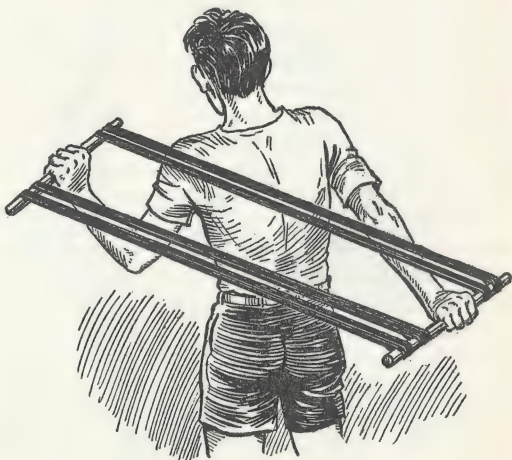
2
FOR ENTIRE
BODY

your leg and back pull, you had better use two or more strips of rubber for each hand. Place your feet against the wall as you sit on the floor and pull just as you would in a boat. Let the rubber provide the resistance to give your back, shoulders, arms, and abdominal muscles a real workout. You will get more exercise out of it for your legs if you are able to flex them up and straighten them for the pull. To accomplish this more easily, it is best to rig up a sort of "sliding seat" by placing roller skate wheels on a footwide board. Sit on this as you work. When you pull, the wheels will draw you toward the wall, and your feet will be drawn up with knees up against your chest. Then, you can push yourself away by straightening your legs for the next "stroke."

The principle is exactly the same as in using a real oar in a boat, or as it is in a high-priced rowing machine. Some athletes use such a machine to continue to stay in shape throughout the years of their post-athletic lives—after they leave school and active competition behind them. To get the maximum amount of benefit out of it, you must pay attention to your job and avoid cheating on yourself. Go all the way back with your body in the pull, and come up slowly to get the greatest stress on your mid-body muscles.

Chest Pull Cables. I am sure that you have seen and wanted the chest expansion cable stretchers which sell at most sporting goods stores, and are advertised in mail order catalogues and youth magazines. You can make a perfectly adequate home-made cable stretcher to serve the same purpose. Your cable stretcher may be made of one-inch-wide strips of rubber, and you may put from three to nine rubber strands on your chest expander, depending upon your physical strength. Perhaps it would be best to start with a three-cable chest expander, and work your way up as your strength increases from the exercises. One method is simply to tie your rubber strands to pieces of broom stick or round dowel wood. This can serve the same

CABLE STRETCHERS



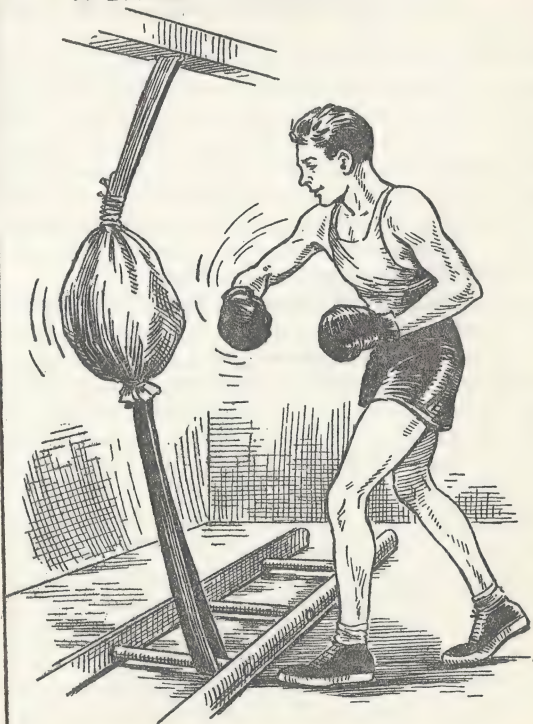
**RUBBER STRIP MAY
BE TIED TO HANDLE
OR,
TACKED AND THEN
WRAPPED AROUND
ITSELF A COUPLE
OF TIMES.**

purpose but it lacks the permanency of good cable stretchers. It is best to make them somewhat more elaborate, to take pains in your work, and so construct a piece of equipment which will serve you for several years.

To begin with, you will probably find that three strands of rubber, cut about one-inch wide and two-and-a-half feet long will give you all the resistance you can handle. Later on, you may put in wider strands of rubber, or add more of the same width. First, examine your rubber carefully to make certain that it is not rotting or otherwise defective. Take two pieces of wood about $6 \times 1\frac{1}{2} \times 1$ inches in size. Fold your rubber strips over at one end so that they are evenly doubled and nail this doubled section to the $1\frac{1}{2}$ -inch side of your wood. Place the other piece of wood on top of the doubled rubber strips and nail the wood together, placing your nails so that they go through the wood and the rubber. Do this at each end of the rubber strands. Don't use too many nails because it will weaken the rubber too much. Five small nails should be sufficient for each rubber strand. After you have secured the rubber at both ends, you may whittle down the handles to fit your grip. Take a rasp or rough file and work down the rough corners of the wood, being careful not to touch the rubber strands with your tool. Round off the grips to fit your own hands, then use sandpaper to make them smooth.

The cable stretcher is a simple device to use. You merely hold it in front of you and pull it apart as far as your strength permits. There are dozens of variations of this basic concept. For example, you may hold the cables behind your back as you stretch them, or you may hold them with one hand high and one hand low as you stretch them up and down with your arms straight out at all times. You will soon discover that pulling these cables will give you a lot of exercise—but I think they are especially suited to the development of the arms, fore-

A LIVELY PUNCHING BAG



*RUBBER MAY BE FASTENED TO
FLOOR OR AROUND LADDER RUNG.*

F.R.

arms and grip. Holding the chest cables by the tips of your fingers as you stretch them will tend to increase the length and power of your hand.

Other ways to exercise with the cables are: 1. Place them behind your back and pull around to the front as far as you can, stretching the rubber across the flat of your back. 2. Do the same with the cables stretching across the back of your neck. 3. Stand on one grip while you pull straight up on the other grip with one hand. Do it first with left hand, then with right hand doing the pulling. 4. Squat to a sitting position, place the cables under your buttocks and try to lift yourself off the ground by raising up with your hands.

A Lively Punching Bag. Having prepared all these muscle-builders from an old rubber tire inner tube, there is yet another which you can add to your equipment. It is a fast-action punching bag. A regular one, mounted on its own striking platform would be swell—if you could afford it, but the cost is generally far beyond the pocketbook of the average boy. Here is an adequate substitute that costs only a little of your time and energy.

Stuff a canvas bag to the size of a basketball or somewhat larger. Use straw or wadded paper, and pack it in so tight that the surface of the bag feels quite hard and cannot be too-easily squeezed in by prodding it with your knuckles. Sew it securely, leaving the top and bottom corners free for the attachment of a rubber strip. This will make a rather light bag, which is exactly what is needed for fast action. Later, I will show you how to make a striking bag, which is a heavier piece of equipment.

Fasten a 1½-inch rubber strip to each end of your canvas sack. Secure one of the rubbers to the floor and the other rubber to the ceiling. You can make a place in your doorway, or find a spot in the cellar, attic, or barn. The bag will react more

quickly to your blows, if, in securing the rubbers, you stretch them pretty much to gain extra tension.

In using your rubber tire gym, remember not to over-concentrate on any one piece of equipment. Dr. Alexis Carrel once called physical fitness a "compound-complex." In simpler terms, what he meant was that it is not a simple thing. For one thing, all *parts* of you must be equally fit. Whenever you begin to work on any set of muscle development exercises, you must take care not to stay at them to the exclusion of all other forms of physical activity. No one set of muscles must get the sole benefit of your work.

A set of over-developed sinews may look well, but they will rarely be truly efficient. Certainly they are not much use if the rest of your body is not equal to them and you lack the coordination which is required of an athlete.

For this reason, you must not neglect your short, fast sprints and other types of leg work. I will give you more specific details on leg exercises in a later chapter. Most boxers, as you probably know, do a lot of bag punching to develop their arms and upper torsos, but no boxer will fail to do a lot of road work, and other leg development exercising. If you read the sports pages accounts of a boxer's preparations for an important fight, you will invariably note that he runs miles and miles in road work, skips rope, shadow boxes, dances about the striking bag, and otherwise devotes special attention to his legs as well as to his upper body.

One thing which may help you in working with your punching bag is to remember to move about rapidly and shift your position around the bag as you punch. This will give your legs more work.

I believe that every boy ought to make himself a rubber tire gym. With it he can keep in trim during the off-seasons, by devoting a half hour daily to special exercises which will be more fun because of the unusualness of his equipment. It may

take a bit of will power to set a regular half-hour stint daily, but you will be strengthening your will power and your physical power at the same time. Keep working conscientiously, and soon both your muscular power and character will grow to the point where you are a trained athlete and a real MAN.

8. *Your Backyard Gym*

A GOOD MODERN GYMNASIUM OFFERS YOU A GREAT VARIETY OF equipment and apparatus for systematic and scientific exercising. When you stop to think about it, this gym equipment enables you to get certain basic exercises which any man craves as a result of his primeval Stone Age heritage. Today, for example, a man has no need to climb trees in fleeing enemies; or to scale cliffs to reach his dwelling; or to run from beasts of prey; or to hurl weapons at game. Hence, his only opportunity to keep his body toned up is to simulate these activities in a gymnasium or by playing some sort of game or sport.

With the average "home gym" there is a danger that you will be forced to keep at just one specific type of exercise. The equipment you buy may be designed for arm development or chest development with no effect on the rest of your body. Consequently, you would tend to overdevelop that part of your body to the neglect and detriment of the other muscles. The answer to this is to create a gymnasium in your own backyard, with such a variety of equipment that there will be no excuse for failing to develop every portion of your body in a harmonious way.

I have worked out a backyard gym which should do the trick for you. It does not require much mechanical skill to build it, and may be constructed from old lumber and piping such as can be found in junk heaps or in the cellar or barn.

Before you tackle any kind of construction job, you should think it out and have a plan. I am including a suggested plan on page 77 for the type of backyard gym which I believe you need. You can make alterations to suit your own special space or ground problems. That is, if your yard has a pronounced slope, you may have to shorten one end of the uprights to keep the bars in a straight line, or if your yard is a very large one, you may want to put in additional equipment, or enlarge this gym. That is for you to determine.

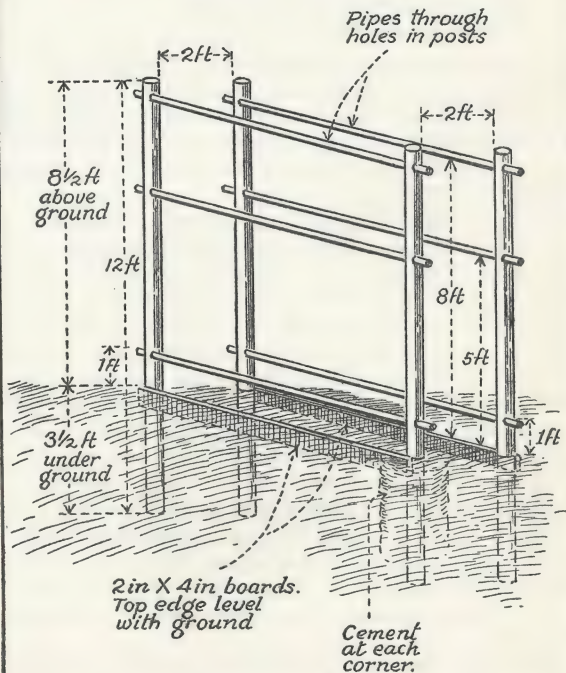
THE BASIC GYM UNIT

First of all, you should have a basic gymnasium unit for chinning, vaulting, hand stands, flyaways, giant swings, and all the regular repertoire of gymnastics. If you build well, and give the apparatus a professional look, you are less likely to have objections from your parents, because all they ask is that you consider the appearance of the home. Determine to do a good job right from the outset. If you put up a rickety set of poles, you will be constantly wasting time bracing them and trying to correct mistakes which should not be there in the first place. Besides the matter of efficiency, there is also the question of safety. The more firm and secure your uprights, the safer they will be for chinning. If Dad sees that you are setting up a worthwhile gym, don't be surprised if you have him out there with you, helping you put it up and helping you use it, too. After all, good health is not something for boys alone. A good gym right outside the home is an invitation which even the busiest of Dads will not be able to turn down.

Use the plan on page 77 as your guide and select the best possible location for the base unit. A good idea is to choose a site which has shade during the morning and sun in the afternoon. In this way, you will be able to decide whether or not you prefer to work in the hot sun or in the shade.

PLAN FOR BACKYARD GYM

FOUR 12 FT. POSTS BURIED ENDS .
3½ FT. IN GROUND. SIX PIPE BARS.
TWO 2 IN. X 4 IN. BOARDS AT BASE.



F.R.

The basic materials needed for your backyard gym are:

Four 12-foot posts, at least 4"x4". They may even be heavier than that, if you are using round posts.

Two 10-foot lengths of 1½-inch piping.

Two 10-foot lengths of 2"x4" wood.

Two 30-inch lengths of 2"x4" wood.

A small bag of cement.

You will observe that the posts shown in the diagram are dug into the ground to a depth of 3½ feet. Set each post so that it stands straight up. You can make sure it is straight by using a string from which is hung a weight, and judge the straightness of the post from the way it coincides with the hanging string.

The posts are set in pairs. The first two posts are placed so that their centers are 24 inches apart. The second pair is placed the same way about nine feet away so that the four posts form a rectangle. Use a square to make sure that they are at right angles to each other. Now, take your 2"x4" wood and nail the short piece about three feet from the bottom of the end posts. The long 2"x4" should be nailed to connect the length of your rectangle. This will help to make your posts more secure and to keep them in line. Use several coatings of creosote or other wood preservative to help keep your wood from rotting for as long a period as possible—this is for the part of your structure which is to be buried underground. Use long screws or heavy spikes to secure the wood. When you paint the wood with preservative, be sure to paint up higher than the ground level will be. The 2"x4" braces are planned so that they will be buried under ground about six inches, as you can see from the plans.

Once you have the framework set up, make a strong concrete by mixing a pail of cement with three pails of sand and a pail of small stones. Dig a hole about a foot square for each

upright post and place about ten large rocks around the post as it stands in the hole, then dump in some stones about the size of your fist. On top of this you will pour your concrete mixture so that it seeps down on all sides of these large rocks. Poke the concrete in with a trowel or stick to make certain that the cement goes all the way to the bottom of the hole. Of course, you will make sure that your posts are absolutely straight and just the way you want them to be before you pour your concrete. Set your concrete all the way up, over the 2"x4" supporting braces so that it will all be part of the framework. When the concrete has set, level off the ground all around your posts so that they are standing on absolutely level, hard-packed ground.

Now comes the task of putting in your piping. The simplest method is to bore holes which are large enough for the pipes. You must measure off a height of five feet in one post and bore a hole just big enough to receive your pipe. This hole must be aimed directly at the post nine feet away. To get it absolutely straight, you will have to be very careful to keep the drill in a straight line all through your drilling.

When the hole is bored, put through your pipe and set a bubble level on it to make certain that it is absolutely level. Mark out the spot where the level pipe touches the opposite post, and bore a hole there, too. Then do the same with your other set of posts, making your best effort to get the pipes parallel to each other and at exactly the same height.

Having done this you can bore a set of holes at the one foot height in the same manner, and another set at a height of $7\frac{1}{2}$ or 8 feet—right near the top of the posts. Your two pipes will be used for exercises at all these different height levels. If you are using the eight-foot height for the chinning or giant-swing exercise, you will simply pull out the other pipe so that it will not be in the way. Similarly, if you are in need of one pipe for vaulting at the five-foot level, you can pull out the other

pipe. When you need them both for parallel bar work, you can replace the missing pipe.

Boring six holes in heavy posts is not an easy job, of course. In fact, it is quite a lot of exercise in itself, but that's what you're building this gym for, isn't it? However, wait until your concrete has set permanently before you drill your holes. If there is any change in the position of the posts because of the setting strain, you want it to come before you do all this heavy drilling, not after you have finished it.

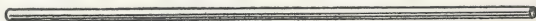
If you can't get a large enough bit to make the 1 ½-inch holes, you may have to use a small one and drill a circle of little holes, then rasp out the inside of the hole with a coarse file. Be very careful not to do this work haphazardly because you can spoil your entire big job by a bit of impatience or carelessness at this stage of the game.

Make your holes just a tiny bit larger than the pipes, because, while you want the pipes to go in rather easily, you don't want them to be so loose that there is danger of having them slide out on you just as you are in the middle of one of your gymnastic stunts. When, after years of hard wear, the holes begin to get a little large for the pipes, you can plug the pipes in with a wooden wedge each time you use your gym. Finish off your job with a good coat of attractive paint to make your gym look well in the yard.

BAR BELL WEIGHTS

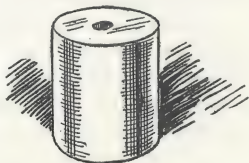
It takes at least three weeks for concrete to set firmly, but you can probably begin to use your gym in two weeks with no ill effects. However, you need not despair for lack of something to do—there is still plenty of work for you in the intervening two or three weeks if you want to make your backyard gymnasium complete. The first thing you ought to get to work on is a good set of bar bells for weight lifting exercises. When you obtain your ten-foot lengths of pipe you should also take

BAR BELL WEIGHTS

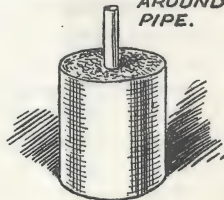


PIPE

1. CAN WITH HOLE
AT ONE END



2. OTHER END OPEN.
CAN IS FILLED
WITH CEMENT
AROUND
PIPE.



3. COMPLETE BAR BELL



F.R.

the precaution of getting a five-foot length for your weight lifting apparatus. This pipe will be the center-piece for all of your bar bell weights which you can add to the ends of your pipe at whatever weight you feel desirable for any particular exercise.

Professional bar bells are discs of steel, in weights from a couple of pounds up to a hundred pounds. These discs have holes in the center and are threaded on the bar and clamped on firmly so that the weight lifter may feel secure during his lifting work. Such weights are quite expensive to buy, but you can make your own by using cement. Get two each of the following kinds of cans: $\frac{1}{2}$ gallon oil cans, one-gallon oil cans, and five-quart oil cans. You can get them free, at almost any gasoline station or garage. Each of these cans will be treated in the same manner, so the instructions I am giving you for the one-gallon cans will apply to the others as well. Incidentally, any kind of cans will do, provided they are graduated in size from about a quart up to about five quarts. Later on, you may even add some larger ones.

Cut out the side of the can which was punctured to release its contents. Use a kitchen type of can opener which will cut out the top neatly and without leaving any jagged edges. If you fail to get a clean edge, it's a cinch that you are going to cut yourself painfully before you are through.

Turn the can upside down and hammer about six holes in the bottom with a punch or large nail. These holes are put there to help your cement drain and set faster and more evenly. You will need some kind of binder to hold your concrete together. One of the best binders for this particular job is ordinary chicken wire. Put in a spiral of this wire about an inch from the inside of the can's inner edge. Get a piece of wood which is $1\frac{1}{2} \times 1\frac{1}{2} \times 15$ inches. This will be about the diameter of your pipe. Wrap the wood in wax paper and set it into the center of the can so that it will stick up above the cement when the

can has been filled. Now, pour in your concrete carefully, tamping it down every inch or so in order to have it packed very firmly all the way. Be sure to keep the stick perpendicular in the can. Let it set a full day after the pouring of the concrete, then withdraw the stick very carefully. Let the concrete set three more days, then hammer down the rim of the open side over your concrete. Do this carefully in order to avoid chipping or powdering your cement.

When this is done, punch a hole in the other end of the can so that your pipe will go through it. One such weight slid onto each end of the pipe will give you a good bar bell weight. Paint the cans with some kind of enamel paint or with gold or aluminium paint to enhance their appearance.

After you have made a variety of weights in this manner, you can bore a hole in your pipe, about an inch from the end; and another hole about eighteen inches from that. A large nail or bolt dropped through these holes will help to secure the can weights and keep them from slipping off or sliding up toward your hands when you are exercising. When you reach the stage of development where you feel that you ought to have heavier weights, you can place two cans on each end of your pipe.

MAKING DUMBBELLS

Having finished your bar bell weights, you can get to work on several sets of dumbbells. Make three sets, using one-quart oil cans for one set, a slightly smaller set of cans for the second set, and a slightly larger type of can for the third set of dumbbells. The mechanics of making these are a great deal like making the bar bell weights, except that the wooden stick you put into the can should have many nails hammered in at various angles so that they project in all directions to furnish a holding place for the concrete when it sets. Set in your $1\frac{1}{2} \times 1\frac{1}{2}$ inch wood in the can, pour in the concrete and let the concrete set firmly

around the wood. When it has set for a day, you may repeat the procedure with the other end of the wood. There should be about six inches of wood projecting between the two cans. Tap the edges over both cans to secure the concrete mold and to keep it from sliding out of the can.

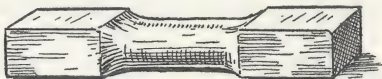
When the concrete is set, you may file down the edges of the stick so that the center piece of your dumbbell will fit your hand comfortably. When you have tailored it down to fit your grip perfectly, you may smooth it down with sandpaper and paint the entire dumbbell with aluminium paint or enamel.

Dumbbells are handy for adding resistance to ordinary calisthenics such as swinging your arms out at your sides. You can pick up the dumbbells at odd moments and swing through a few, brisk, simple drills without breaking into a sweat over it.

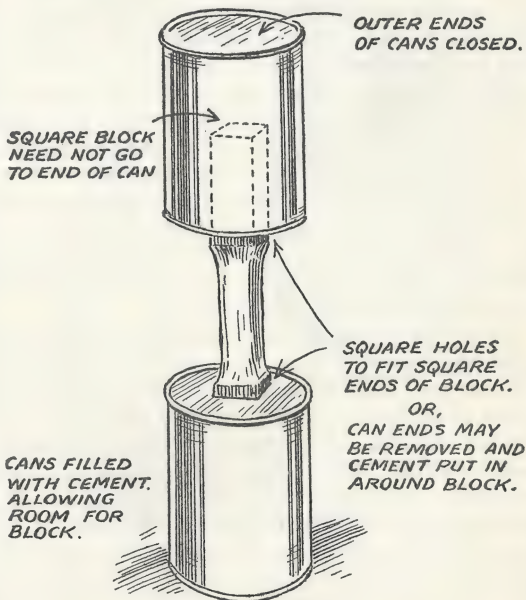
PULLEY CHEST WEIGHTS

A pair of chest weights is not hard to make, either. You have seen how rubber ones, and pulley-less weights may be improvised. The ones you need for your backyard gym need pulleys which are secured at a height of about four-and-a-half feet in the end posts of your horizontal bars unit. Get pulleys large enough to take a half-inch manila or nylon rope. Tie a pair of hand grips to one end of the rope and cut the rope off at the other end so that, when fastened to the weight, the hand grip will hang only about eight inches down from the pulley. The other end of the rope should have a hook fastened to it which should be attached to cans of sand. You need not go to the bother of making concrete weights for your chest weights because any kind of weight which you want to attach to the hooks will serve equally well. If you are finicky, though, you may follow the same procedure as in making the bar bell weights, except that you anchor an eye-hook in the cement. Flatirons, cans filled with scrap iron, or anything else which

DUMB-BELLS



**BLOCK OF WOOD ROUNDED IN CENTER
TO MAKE HANDLE.**



F.R.

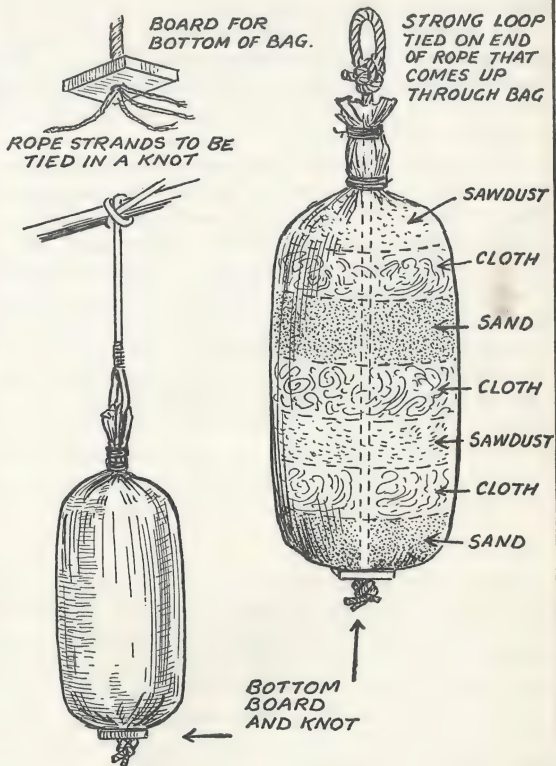
will add sufficient weight to the rope is equally satisfactory. What you are after is resistance to your pull. You do need several changes in weight, however, since some exercises require light weights of about three pounds, while others may take fifteen pounds on each rope. So much for your chest weights.

A HEAVY PUNCHING BAG

Next, you may construct a heavy punching bag which will also serve as a blocking dummy for your football practice. You will need two large burlap or flour sacks placed one inside the other for greater strength. Set a round block of wood in the bottom of your bags. Bore a hole through the center of this block and also in the bottom of your bags so that a heavy manila or nylon rope may be passed through it and all the way up the length of your bags. The rope should be knotted heavily at the bottom so that the entire weight of the bag can rest on the knot. You will find that it is impossible to make such a bag and then hang it up with a rope which is simply tied around the gathered-in material left over at the top. You must provide at the beginning for hanging it right.

Having done this, pack in alternate layers of sand, sawdust, and old rags in that order. Cover each layer of filler material with a cloth so that the layers do not mix. It is a good idea to add a piece of heavy canvas to the bottom of the bag in order to keep the materials from seeping out. When you have completed the filling, and have tamped it as firmly as you can, you may make a large loop of the remaining rope. Gather up the remaining folds of bag and wind them tightly around the center rope with another piece of strong rope. The bag may be hung from your iron pipe when the pipe is set in the eight-foot position. The bag should not be heavy enough to bend your pipe, but you ought to take the precaution of hanging it near one

HEAVY PUNCHING BAG



Z.R.

end of the pipe, rather than in the center where the strain on the pipe would be the greatest.

To use this bag as a blocking dummy, you need only set it on the ground so that you can throw your blocks at it. When you are practicing charging against it, you should have a team mate stand behind it with his thigh braced against it for added resistance to your line charge.

You may add your rubber tire gym equipment to your outdoor gym and complete it with any kind of additional apparatus which you think you would like to own. An overhead ladder may be fastened to your uprights for a "flying rings" type of exercise. Indian clubs may be whittled out of 4x4 inch lumber. A corner of your yard may be utilized to set up an overhead platform on which you can hang a regular punching bag. The bag itself, while not cheap, is within the saving potential of a boy—but the platform comes to a sizable sum. That's where you'd be saving, because that is something you can build for yourself. The chief requirements are that it be solidly constructed and solidly set for the best rebounding possible. The rat-tat-tat of the punching bag will serve as a signal to summon your pals down the block for the daily workout session.

A MEDICINE BALL

A heavy medicine ball may be made in much the same manner as your punching bag. It requires only a fifty-pound flour sack, reinforced with an inside layer of canvas, and filled with sawdust. Such a ball makes a fine warming up exercise with your friends. You can toss it a few feet to each other, or pass it into each other's midriffs at close range to harden up your stomach muscles. This is not as rugged as it sounds. Once you have developed your abdominal muscles, they can take quite a blow and, in this instance, you will be prepared for the push from your neighbor and will be cushioning it by receiving the medicine ball with your hands. A good medicine ball drill is

a fine workout for almost every part of your body. It is a good way to begin and end a more strenuous drill with your other equipment.

Now that you have made your complete backyard gym, let's take a look at some of the uses to which you can put it.

9. *A Workout in the Gym*

IF YOU WERE GOING TO COLLEGE OR PARTICIPATING IN ANY organized physical development program, you would quickly find that the backbone of your training would be the workouts in the gym. As a matter of fact, the foundation of practically any athletic or sports program consists of the gym work. Bob Kiputh, the great Yale swimming coach, always had his teams spend weeks of calisthenic and gymnastic training before they were even permitted to dip a toe into the swimming tank. The professional baseball teams in spring training will devote their first week or two to running, bending and other warming up and body-building drills. Any football team does a lot of calisthenics and apparatus exercising all through the year. In September, the football squad will usually have two daily practice sessions devoted exclusively to calisthenic exercises. It goes without saying that the winter and spring months will also call for much gymnasium work in order to maintain conditioning at a point near its peak. This is valuable to any athlete because it will avoid the necessity for much hard work to regain good condition. The less work you have to put in on body-building, once you have achieved a sound physique, the more time you will have to practice the techniques of your favorite sport.

Let's pause for a moment to consider the benefits which you may rightfully expect from the gym phase of your physical training program. There are six major objectives in gymnastics:

1. To keep the organic system of your body functioning normally. 2. To develop and maintain good posture. 3. To increase agility. 4. To increase physical strength. 5. To improve muscular coordination. 6. To teach you some exercises which you can use throughout your lifetime for a "daily dozen" or "setting up" plan to stay healthy.

You can count on a sound gymnastics program to do these things for you. I once interviewed Gus Peterson, the wrestling coach of Columbia University. In the course of our talk, he told me that he was once a puny boy. More than that, there was a time when doctors actually despaired for his health and even for his life. But Gus Peterson found a local gymnasium and began to work out conscientiously. He sought competent advice and slowly brought his body back to health. In a few short years he built himself one of the finest physiques you could find, became an outstanding exponent of the science of wrestling, and took over the assignment of wrestling coach at one of our largest universities.

One of the finest things which gymnastics will achieve for you is a flexibility of muscle and tendon. This is important to keep you from suffering injuries in body contact sports, or in the little unexpected strains which we undergo almost every day. If you ever wondered why there are so few serious injuries in college football, just go out to one of the stadiums very early before a game while the teams are still taking their preliminary practice. They don't begin with punting or passing. The team is lined up by one of the assistant coaches and put through a regular calisthenics drill. Then the individual players go through a series of limbering up maneuvers which would tax a circus contortionist. They know that it is important to get the blood flowing freely through the muscles and to relax both tendons and muscles so that there is little danger of a tear or pull from sudden exertion.

There are three main gym systems of gymnastics: the Danish,

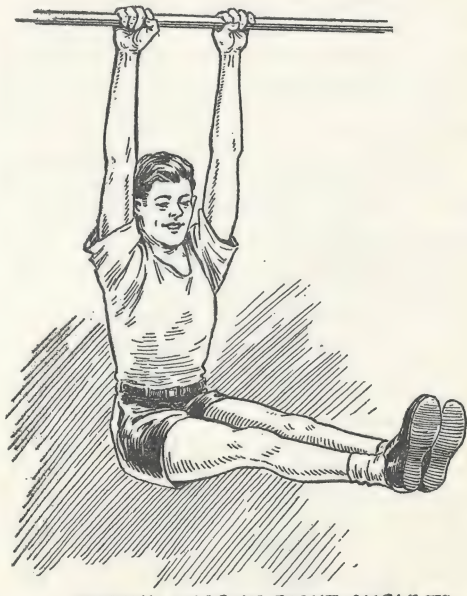
Swedish, and German. All of them begin with easy work for loosening up the body muscles, go into the main exercises, then taper off after the most violent phase of activity has been reached to give your body a chance to cool off again.

As I told you before, gymnastics gives a man his only chance to get certain exercises which his primitive forebears had to engage in to live. Perhaps this is why we like to try such stunts as chinning the bar. I remember how much I liked it as a boy. But, even though it is fine for strengthening the grip and building arm and shoulder muscles, it is not the only exercise you can do on your horizontal bar. The upper body is apt to get most of the exercise, anyway, because it is natural to want to be proud of your chest expansion, large biceps, or crushing grip. To offset this tendency of overconcentration on one part of your body, your gym work will include other types of exercises. Work with an old mattress or other large pad under you for protection in case of a fall. A sample of one very good exercise is the *hanging jackknife*. Simply hang from the horizontal bar by your hands, then bring your legs up slowly so that your body forms a right angle at the hips. Now, bring the legs down again, very slowly. This is an important phase of the hanging jackknife exercise, because it is largely the slow downward motion that furnishes really hard work for the muscles of your lower torso.

A variation of this exercise is the *hanging scissors*. Suspend your body from the high horizontal bar as before and move your legs back and forth in a scissoring motion as though you were trying to walk stiff legged through the air. Keep your legs straight and work them as rapidly as you can.

A third horizontal bar exercise is to hang from it by hooking the backs of your knees over the bar and lifting your upper body into sitting position, then bringing it back to a straight head-down hang again. Repeat this several times, if you can, but have someone nearby to rescue you just in case your strength

HANGING JACKKNIFE



EXTEND LEGS AT RIGHT ANGLE TO
BODY AS MUCH AS POSSIBLE.

F.R.

gives out and you cannot pull your body up high enough to grab hold of the bar when you are through with the exercise.

Of course you will want to get into the regular gymnastic tricks, too. A stunt with which many musclemen like to show off is *the one-hand chin*. Grip the bar with one hand, then hold that wrist with the other hand. Using this one-handed grip on the bar, see how many times you can chin yourself. Repeat it with the other hand on the bar. In all your chinning exercises, make sure that you work at least part of the time with your palms facing away from your body. This is a fundamental position for practical application of the chinning exercise. Many boys find it a bit easier to work with the palms facing toward their bodies, and neglect the other form of exercise. When you have gotten pretty fair at this version of the one-hand chin, try it without gripping your wrist at all—just hold the bar with one hand and see how many times you can pull yourself up to it.

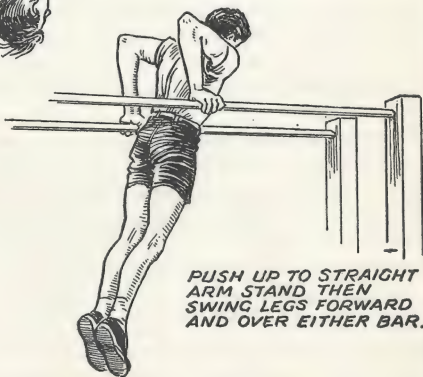
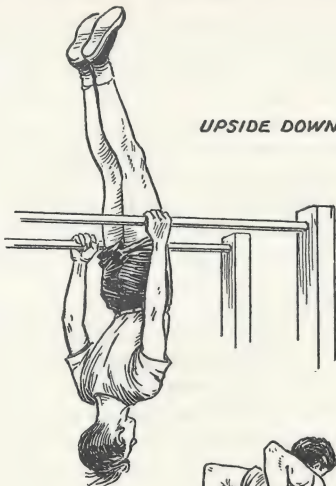
Try taking a grip on the horizontal bar and swinging yourself back and forth in a great pendulum-like arc with the feet held together. This is good training for some of the elementary tricks on the high bar.

Next, take a grip on the horizontal bar, with your palms facing toward your body, bring your feet up through your hands under the bar and twist your body so that it turns completely around and you are again facing in the original direction, still holding the bar. This will leave your arms twisted a bit and put a greater strain on your wrists. Try to hang on the bar for a count of five before you release it and drop to the mat. Later you can try to reverse this and regain your original hanging position. When you are bringing your feet back through your arms, try to hold your body in the "flying swan" position for a moment.

Finally, grip the bar with your palms facing away from your body and lift yourself straight up so that your hands are straight up and down, with the bar at about waist height. This is very

PARALLEL BAR TRICKS

UPSIDE DOWN STAND.



*PUSH UP TO STRAIGHT
ARM STAND THEN
SWING LEGS FORWARD
AND OVER EITHER BAR.*

F.R.

difficult for beginners and will require considerable preliminary practice and development exercising before you can do it. It is easier to do if your hand grip on the bar is almost at the wrists. From this position you will go on to most of the standard gymnastic tricks such as the giant swing around the bar, the hand stand with your feet straight up in the air high above the ground, the reverse direction spin and many other stunts.

Another fine exercise for the high bar is to grasp it with your hands spread apart slightly farther than your elbows. Holding the back rigid and slightly arched, somewhat in the position of the swan dive, pull yourself up until the high bar touches the back of your neck. See how many times you can repeat this, as in chinning the bar.

With the parallel bars both up in the high position, you can walk yourself down the length, hand over hand several times for a good piece of arm and shoulder exercise.

Now bring the parallel bars down to the five-foot height and your outdoor gym is ready for an entirely new series of stunts and exercises. First grip the bars with your hands so that your elbows are also resting on top of the bars and swing yourself up to full arm extension, so that you are standing with your arms straight up and down on the bars, your body dangling between them.

From this position, you can exercise your abdomen by lifting your legs or scissoring them back and forth rapidly. You can exercise your upper torso by letting your weight down so that your elbows bend and then pushing up to straighten them again. The effect is similar to the push-up exercise off the floor, but it gives the back muscles more work.

Having learned to rise to the arm stand, you then can try swinging your legs straight back, higher and higher, until you are doing a "hand stand on the parallel bars." This is easier than the handstand on a single overhead bar, because your hands are spread and can press forward or backward on the pipes to

compensate for the little momentary losses of equilibrium which threaten your balance.

The parallel bars, when put into the lowest position, will enable you to work on some of the hand stands with more confidence, since you will not have so far to fall, should you lose your balance.

When you are working on stunts, be sure to have someone standing alongside to catch you in case of a fall. This is standard procedure at modern gymnasiums. You can set your parallel bars at the five-foot height and do hand stands on the floor so that the backs of your calves rest against the bars. In this way, you will have confidence that, if you start to fall backward, the five-foot horizontal bar will catch your legs and stop the fall. Practice balancing in this manner until you have mastered the secret of maintaining your equilibrium and can begin to walk away from the bar on your hands.

You can create a "*fireman's pole*" by sliding one parallel bar out of its position and tying it in a vertical position against the other high bar. This will give you a secure up and down pipe on which you can climb or try the "flag" exercise. The "human flag" consists of taking hold of the pipe with your left hand low and elbow bent so that your side is resting on your upper arm, and your right hand about two feet above it, then lifting your feet straight out so that your body is parallel to the ground. The illustration on page 99 shows how it is done.

Another vertical pipe exercise is to sit straddling the pipe with legs on either side, keeping your back straight and legs rigid. Now, pull yourself up the pipe, using your hands only and keeping your legs straight out.

CHEST WEIGHT EXERCISES

Your chest weights ought to serve you admirably because they are so convenient to use. You can develop a regular routine of work with them which you might do once a week. For in-

stance, you might start by simply pulling them from a position in which your arms are straight out in front of you, to one with your arms straight out at your sides. Then, turn around with your back toward the chest weights and repeat this same exercise, pulling the weights so that your arms are in front of your body and letting the weights draw your arms slowly back until the arms are extended at your sides. Resist the pull of the weights by taking it easy on the backswing.

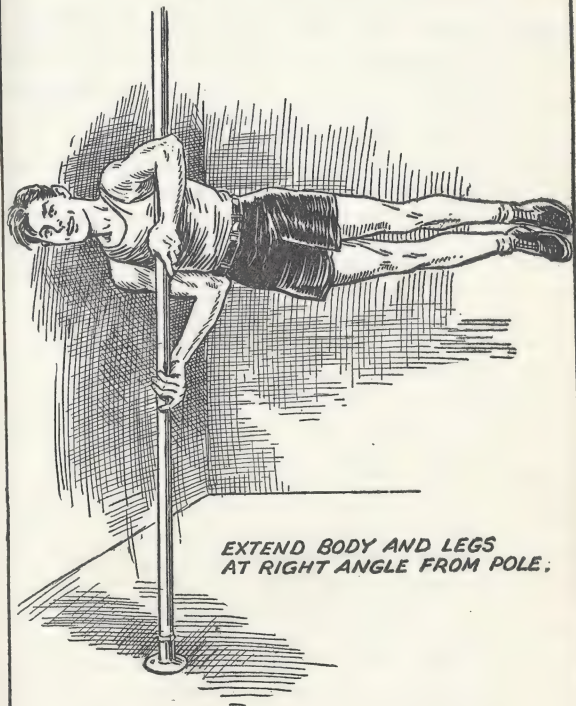
Now, face the chest weights and pull them straight up over your head then down to your toes in a stiff-knee bend. To build up your back and shoulders, hold your hands out at the sides with the weights about half way off the ground and move your arms back and forth in a circle of about a foot in diameter. You will quickly find that this develops a powerful pull on the muscles of your upper torso after the first minute or two. Keep at it until you feel a very strong strain developing from doing the exercise.

Next, face away from the machine again and try the "punching exercise." Take a boxer's stance and punch vigorously in a "one-two, one-two" rhythm to develop your back and triceps muscles.

Then take both hand grips in one hand and hold the weights straight out in front of you. From this position, turn your torso first to the right and then to the left, swinging your stiff arms in a wide circle. Repeat this exercise with the weight grips held in your other hand.

Finally, end the session with a fast six-count series. One, bend, touching your toes with the grips. Two, regain position with arms straight out in front of you. Three, bring the arms straight out to the sides. Four, regain position with arms straight out in front of you. Five, lift arms straight up overhead. Six, regain position with arms straight out in front of you. Do this exercise on a fast six-count beat for about three minutes, to wind up your chest weight drills.

THE HUMAN FLAG



*EXTEND BODY AND LEGS
AT RIGHT ANGLE FROM POLE.*

F.R.

PUNCHING THE BAG

Now, perhaps you would like to try slugging your punching bag around a bit. Before you do this, however, there are a few things you ought to know. First, you can skin your knuckles badly unless you protect them with gloves. There are special punching bag gloves made for this purpose. If you can find a pair of sheepskin winter mittens, they will be ideal for bag punching. Mittens enable your fingers to remain close together during the striking impact. It is also wise to hold a compressed wad of cloth or cotton in your hand to help take up some of the shock of your blows. Professional boxers always have their hands wound with gauze and tape before they fight or work on a punching bag. If you can learn how to do a good job of taping your own hands it would be a good idea to do so before any serious bag punching exercises.

Whatever you do, don't stand flatfooted in one spot when you are working out with the heavy bag. Keep on your toes and dance around the bag just as though it were a real person who was watching for a chance to get a few licks in against you. Learn to carry your guard up and to punch in proper form. Remember that if you hit this heavy bag with your wrists and hands not in a line with the arms, you are apt to give your wrists a painful turn under the force of your wallop. Take it easy at first, until you get the feel of the thing. If you hook your clenched fist inward just a bit, it will help to keep your punching power in a direct line from the knuckles to the elbow. Aim your punches at a definite spot on the bag, don't just hit away haphazardly. Select some spot for each blow. Occasionally, you should smack the bag as it is rocking back toward you; or catch it with a blow as it is moving off to one side. You will be aiming at a moving target, which is a distinct advantage because it will improve your agility and timing.

Your punching bag can be made livelier by having a three-

inch piece of rubber-tire inner tubing fastened to the bottom and anchored to the ground. This rubber strip will make the bag respond more quickly to your punches, and you will have to punch faster and with more authority in the "one-two," or you are likely to miss the bag entirely with the second punch. Most of the time, however, you will be using the heavy bag without the rubber anchor.

This should give you some idea of what kind of workouts you can get with your bars, chest weights, and punching bag. Now, let's take a good look at the kind of muscle-building exercises you can do with the weights you constructed.

10. *Working With Weights*

SOME OF THE MOST REMARKABLE EXHIBITS OF STRENGTH MAY be witnessed free of charge any time you can find a family which is moving. The two truckmen will, rather casually, handle such items as refrigerators, chests of drawers, trunks, and so on, with only one man carrying the refrigerator. Whenever I see such men at work, I am reminded of an incident which took place in a gym where a high school basketball team was practicing. Two truckmen were delivering a crate of dumbbells and other gym equipment. They unloaded a large box into the part of the gym near the basketball court. As they dumped the crate off the hand truck, one of the bigger basketball players jokingly tried to pick up the large box, but discovered that he could not even budge it. One of the truckers laughed condescendingly. A little bit annoyed, the player wanted to know what was so funny about it.

"It's not so easy, is it?" kidded the man.

Well, one thing led to another and soon they were boasting about their strength. The basketball player was a tall, strong boy and was proud of his strength. He had a long record of achievement in school athletics and felt he had nothing to be ashamed of when it came to physical prowess. Finally the truckman offered to bet that he could carry that box across the gym if it were lifted upon his back. Having just failed even to move the large crate, the player was quick to accept. It took the combined strength of three boys and the other trucker to get that

box up on his back, but, once it was there, the man carried it clear across the gym in a magnificent display of leg power—for, of course, the burden was entirely on his leg muscles.

The basketball player lost his little bet, paid off as gracefully as he could, and learned his lesson. Once a reasonable amount of weight (and you'd be surprised how great it can be) is lifted on your back, you can carry it. The trick is to get it up there in the first place.

Now, I don't believe in weight lifting as a sole means of physical fitness or body building work, but every boy should learn how to handle weights, because there will be times when he should know the proper way to lift in order to avoid injuries such as back strains or ruptures. By using the legs to do the work, you will be saving your back.

If a boy wanted to become just a weight thrower, or a weight lifter, I suppose he would not worry too much about getting muscle-bound. He could just go ahead and spend all his time with the weights until he developed the freakish kind of body which is associated with weight lifting contestants. However, I am assuming that your interests lie in the major American sports such as baseball, basketball and football; or in the more active minor sports such as tennis, hockey, fencing, golf, and the like. For these competitive sports, agility and speed are of paramount importance, and it cannot be denied that excessive work with weights will dull the flexibility of your muscles, even though it is equally true that weight lifting, under proper supervision, will put big muscles on you. The important thing to remember in working with weights is to do it in moderation and to get competent supervision wherever possible.

At various Y.M.C.A. gymnasiums throughout the country, I have watched men and boys work with the weights. Generally, there is a large mirror in which they can watch the effect on their bodies of the particular exercise they are doing. They see which muscles are being utilized and seem to take pride in

seeing those muscles in action. At one Y.M.C.A., I met a fellow who was underweight and underdeveloped. By taking a course in weight lifting under the supervision of the instructor, he built his body up to the point where he was able to pass the physical requirements for fireman in the New York City competitive Civil Service tests. He was a pretty good tennis and volleyball player and remained such at the time he passed the fireman's examination. Unfortunately for himself, he became so enthusiastic about his weight lifting that he began to overdo it. In another year, he was so muscle-bound, and his reflexes were so slowed, that he could no longer jump well enough to spike in volleyball, and, in tennis, a drop shot would leave him standing helplessly in the backcourt because of the slowness of his reactions. This was a case where a fellow ruined himself by too much development.

In general, I think it is a good idea to stop trying to add muscle after you have achieved a good physique. After that you ought to concentrate on learning new sports skills, perfecting your timing and coordination, and keeping your body toned up.

I hope that I don't frighten you out of working with weights. Actually, some of our greatest athletes have trained with barbell weights. The military academies have fully-equipped weight rooms, most Y.M.C.A. gymnasiums have a weight lifters' club, and practically every college is similarly equipped.

Irv Mondschein, who was National Decathlon champion at N.Y.U., attributed his success in athletics to his weight lifting work. He could not be deemed muscle-bound, despite his bulk, because he was able to leap six feet seven inches in the high jump, twenty-three feet in the broad jump, over twelve feet in the pole vault, and performed creditably in the hurdles and runs, as well as in the weight-throwing events.

The fact that weight lifting contests are replete with monstrously muscled men, who seem ridiculously freighted with

bulges, should not blind us to the fact that weight lifting is a legitimate training technique. The only thing is that you should see to it that your exercises with weights are soundly planned and carefully graduated from the very light weights up until you are lifting the more respectable burdens.

The really basic difference between right and wrong for the boy is that the boy should be weight **TRAINING** instead of weight **LIFTING**. Weight lifting is a competitive activity, while weight training is a way of building up your strength and muscles.

In the exercises which I will give you, I am making no effort to show you how to lift weights for competition. My main objective is to show you how to develop certain parts of your body which you feel need more strength or muscle.

I think the average boy should work with the weights only twice a week. He should work with light weights as recommended here, and not try to give himself extra work by adding to recommended loads. In weight training, it is important to work slowly and carefully with a little rest between each exercise. In the big gymnasiums, the weight men will seem to be standing around most of the time. They have learned that it is important to take these frequent rests in between each lift or exercise.

Let's try some of the easier weight exercises to begin with.

The Two-hand Curl. Start with a five-pound weight on each end of your bar. After about six months, you may work with ten pounds on each end of the bar. The exercise is begun by standing erect, with the bar hanging down at arm's length in front of you. Your hands should be facing palms out. Keeping your elbows at your sides and your back straight, swing or curl the weight slowly up until your knuckles touch your shoulders, then lower it to the starting position. This exercise is used for development of the biceps. To work on the triceps, which

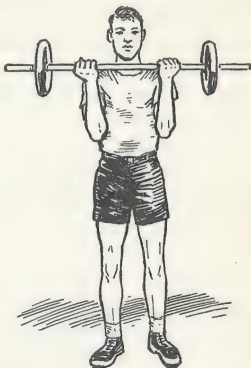
are in the back of the upper arm, do the same exercise with your hands facing palms down on the bar.

The Two-hand Press. You can work with about seven pounds on each end of your bar at the start. This may be doubled after a few months. Stand erect with the bar at shoulder height and your hands under it so that it is resting on your palms. The palms face out from your body. Keeping your eyes straight ahead and not lifting your head at all during the exercise, lift the bar straight up slowly until your arms are fully extended, then bring your arms down again. Do this and the curl four times only during the first week, and add one more time to your exercise each week until you are doing it ten times.

The Straight-legged Lift. Start with a weight on the bar equal to a quarter of your own weight. You may have to make a jumbo-sized pair of concrete weights for this one, if you are a heavyweight. The weight should be resting on the floor as you bend over to it, with the legs kept straight from ankles to hips. Grasp the weight firmly, straighten up to an erect position, and lower it back to the floor.

The Straddle Lift. Here again, you can start with a weight totaling a quarter of your body weight. This exercise is for the development of your thighs. Stand with one leg on either side of the bar, gripping it in front of your body with the right hand, and behind your body with the left hand. Keep your knees bent and your upper body erect. Lift the weight by straightening your legs. Lower the weight by bending the legs. Repeat this exercise six times. Remember that your spinal erector muscles operate strongest in contraction, so, when you lift heavy objects, do so with your back straight and flat at all times. In addition, you should always pick your weights an inch or so off the ground as a sort of test to see whether or not they are balanced properly. Otherwise you may find that you have misjudged the balance, and the unexpected amount of weight on one side will throw one of the heavy cans off the bar.

TWO HAND CURL



TWO HAND PRESS



F.R.

Two-hand Snatch. When you have been working with the weights for about a month, you may try the two-hand snatch. Start with twenty pounds on your bar. Grasp the bar with the palms facing in, back straight, one foot well in front of the other, and the knees well bent. Lift the bar from the ground or floor directly overhead with a quick straightening movement of the legs and back, as well as the pull of your arms. Keep that back straight!

The Straight Arm Pull Over. Here is one for the lower chest cavity. Start it with the iron bar alone, without any weights on the ends. I don't believe you should ever use more than a five-pound weight on each end for this exercise. It is very strenuous work and the strongest men in adult weight classes rarely use more than thirty pounds total weight. Too much weight will ruin the proper form and can cause torn arm ligaments.

Lie flat on your back with the bar in your hands, which are extended behind your head. Raise your arms and lift the bar until it is directly over your head, then swing it down until it is resting on your thighs. Exhale as the bar travels forward to your thighs, and inhale on the return trip.

The Side Press. This is an exercise which you can practice with a five-pound dumbbell at first, then work your way up to the ten-pounder. It is good for your abdominal and back muscles. Hold the dumbbell in a bent arm position at shoulder height. The exercise is obtained by bending your body to the side opposite the dumbbell, simultaneously pushing the weight up to arms' length above your body. When you return to erect position, the weight should be lowered to shoulder height. In this one you may keep your eye on the weight so that you will have better control of it. In the lighter weight work this is not particularly important, but when you begin to use heavier weights, you should avoid having them sway backward so far that you cannot control them. Do the exercise with each hand.

STRAIGHT-ARM PULLOVER

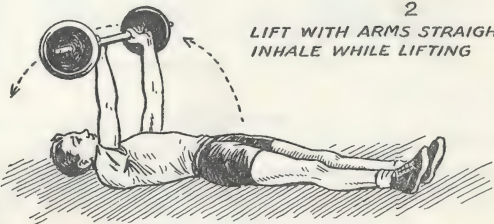
1

BAR RESTS ON THIGHS.



2

LIFT WITH ARMS STRAIGHT.
INHALE WHILE LIFTING



3

DISCS ON FLOOR. RETURN THE
BAR TO THIGHS AND EXHALE.



F.R.

The Wrestler's Bridge. This is one which comes highly recommended by practically all athletic coaches. It is a terrific neck developer as well as a fine workout for your back muscles. Start practicing this without any equipment whatsoever for the first month, then try it with the bar alone for another month. At no time should you use too great a weight in the wrestler's bridge.

Lie on your back with the bar on your chest and the knees bent at right angles so that your feet are flat on the floor. Push the bar up slowly to arms' length while you roll up on the top of your head, which is resting on a pad of some kind. At this point you will be in contact with the ground only with your head and feet. Don't hold this position, because that is not what produces the real benefit of the exercise. The real work is in getting up to the position, so, as soon as you are there, lower the bar back to your chest, your shoulders back to the floor, and repeat the stunt.

The One-hand Curl. The one-hand curl is similar to the two-hand version, except that you are using less weight, and your free hand is braced against the corresponding knee. Start with the dumbbell between your legs and lift it up to your shoulders, maintaining a crouched, back-straight position at all times during the exercise. Do it once with the palm out, then with the palm facing inward. Repeat with the other hand.

The Upper Body Lift. Place your feet in a wall strap or under some low bar. Lie flat on the ground with a five-pound dumbbell under your neck. Your hands should be holding the dumbbell with your elbows straight out at the sides of the head. In the early stages you should try this exercise without any weight at all, but, eventually you will be able to work up to a ten-pound weight.

The exercise is done by lifting your upper body to a sitting position and lowering it back slowly. You will find it a consid-

WRESTLER'S BRIDGE

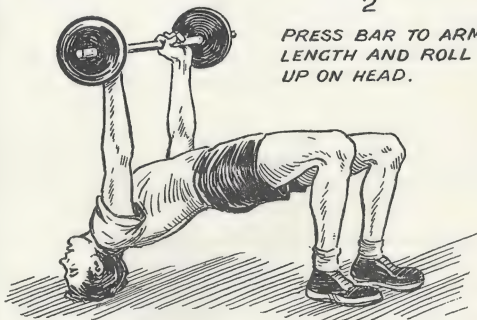
1

*KNEES AT
RIGHT ANGLE.*



2

*PRESS BAR TO ARM'S
LENGTH AND ROLL
UP ON HEAD.*



F.R.

erable strain on your abdominal muscles. Do it six times, adding one extra time each month until you are doing it ten times.

The Deep Knee Bend. The deep knee bend is another training method for developing the muscles of the chest and thighs. You may start with about a quarter of your body weight and add about ten pounds each month until you are working with the bar carrying half your body weight. The bar is held behind your neck with the elbows bent so that it rests on your shoulders, back, and hands. Take a deep breath as you stand erect. Exhale. Take a second deep breath and bend your knees, keeping your back and head straight, until you come down into a squat similar to that used by a baseball catcher. Return immediately to your erect position, keeping the back straight at all times, and exhale. Repeat the exercise three times, at first, adding one additional time each week until you are doing it six times.

Even after you have been working with weights for a considerable period of time and have already developed your muscles, you should always start each training session with about half the weight with which you intend to work. Always "warm up" properly no matter what the activity may be.

If you are underweight, these exercises will help you to put on muscle, but it may be necessary for you to eat an extra meal in addition to the regular three meals. Underweight boys should consult their family physicians or school doctors for a suitable diet.

An abdominal board will help you to build up your stomach muscles for the more strenuous work with weights. The abdominal board is simply a long sturdy plank which is placed on the third step of a flight of stairs, or against your horizontal bar in its lowest position. The board is secured at this angle while you lie on it with your feet tied or held down by a friend at the upper end of the board. Your exercise consists of raising yourself into a sitting position, with your arms locked behind

your neck. Since your head is downhill, it will be harder to get into the sitting position which will develop your abdominal muscles that much sooner.

Your weights should be picked up evenly and without tilting. Since accidents may happen no matter how carefully you pick up the bar, most weight lifters secure their weights at the ends of the bar before they practice lifts. You can wedge your weights on the bar by means of wooden pegs which are driven in with a tack hammer, or drop long nails through the holes which you have bored on each side of the weight to keep it from sliding on the bar. Always remember to pick up the weight a couple of inches off the ground to test the balance of your grip before you attempt to do any lifting exercise.

One way to make lighter weights out of big ones is to take your five-quart cans and, with a hacksaw, cut each one into three sections before you have poured and set the concrete. Weigh all of your cans so that you will know exactly what you are working with when you do your lifting. Be sure to begin working with your lightest weights—never try to rush physical development. It will come fast enough and be with you longer if you work within your limits until you are ready to go on to the next level of exercise.

The dumbbells which you have made will be useful for some of the weight-training exercises which I have given you here. In addition to that, the lighter dumbbells will be valuable assets for the swinging calisthenics drills. Instead of extending your empty hands to the sides, swinging them in a circle at your sides, lifting them overhead, and bending them back as far as possible, you can add the weight of two-pound dumbbells to these drills. Never add so much weight, however, that you cannot work fast in these calisthenics. The greatest advantage in swinging drills comes from doing them fast to retain the agility and muscular coordination of your body while you are strengthening it.

You can also use your heavier dumbbells, say the five-pound ones, for wind sprinting. Holding a five-pound dumbbell in each hand, run twenty yards at top speed. Repeat this three or four times and then do it without the weights.

The final instruction in this chapter is the same as the first one. Take weight training easy for a long time. Get competent supervision if you are going in for weight LIFTING. Don't fool around with very heavy weights at any time. Keep that back straight when you are lifting, and let your legs do all the work. And, remember that weight training is only one phase of your all-around training program. It should be carefully coordinated with wind sprints, calisthenics, athletics, swimming, and other physical training activities.

11. *Building Strong Legs*

BIG LEAGUE BASEBALL SCOUTS, IN LOOKING OVER A NEW PROSPECT, on a sandlot or school team, pay a great deal of attention to the condition of his legs. A young athlete with weak underpinning has two strikes against him at the very outset, because a major league club will hesitate to invest time and money in his athletic future. Their experience has proved that the foundation of a sound athletic career lies in the young ball player's leg muscles and development.

This is almost an axiom throughout the world of sports. A boy who hopes to develop into a good competitive athlete must learn at the very outset that his legs will be a major determining factor in measuring his skill and potentialities. It makes no difference what sport you compete in—track, baseball, tennis, football, basketball, handball—you can't get along without strength and agility in your legs. So take care to build a firm foundation for your body and you will be a long way on the road to success in any sport.

It is well known by coaches and sports writers that the first part of the athlete's body to indicate signs of weakness is the foundation—the legs. When an athlete's legs fold up, it is a sure sign that he is on the down grade. To show you how important legs are to an athlete, I need only remind you that the great Babe Ruth could still hit right up to the end of his playing days. In fact, on one of the last days he played, he hit three home runs. But his legs were no longer able to take

the terrible strain of the big league playing grind. Mel Ott, one-time boy wonder of the New York Giants, also blasted home runs in the last few years of his career, but he could only play occasionally because of his aging legs.

So if you hope to have long life as a competitive athlete, you must conserve your energy for the good of your future. Develop your legs, then avoid having to overwork them in such things as jogging to run off weight. It is all right to jog long distances if you are trying to become a distance runner or are going out for the cross-country team, but it has been demonstrated to the satisfaction of modern day coaches that this sort of jogging will shorten the athletic life of a competitor in such fast games as basketball and football.

There are many different methods of getting your legs into good condition. You will have already picked up some of them from previous chapters. In this one, I want to concentrate on just plain work for the legs with very little sugar-coating added in the form of tricks, stunts, or games. In other words, you will have to have the determination and will to want strong legs and to work for them.

All athletes utilize the well-known *Bicycle Pumping* exercise. As you probably know, this involves lying flat on your back, hoisting your feet into the air as you roll back so that the body is supported on the shoulders and upper arm, the hands bracing the hips. The feet are then pedalled as though you were riding on an imaginary bike. The legs must be well up in the air to get the most out of the drill. Stretch upward with the toes as you "pedal."

The Duck Waddle is another fine leg exercise. To do this you must get down into a full squat so that your buttocks are resting on your heels. Place your hands on your hips and try to walk around in this squatting position. Remember, the upper body remains upright in this exercise—only the knees should be bent. Do it for a full minute.

The Full Knee Bend is a fundamental exercise. Begin it by standing erect with hands on your hips, head up, shoulders squared, and back arched. Then, maintaining the position of your upper torso, you must drop to a full squat, bending only your knees so that your buttocks will just touch your heels. Rise slowly from this position and repeat the exercise six times. It is a good way to develop the whole leg all the way down from the hip.

Fox Running is a variation of the running-in-position exercise. Get down into a four-point stance or sprinter's crouch. Keeping both hands on the ground, move your legs in a running motion. However, you must actually remain anchored in one spot. Try to get some drive into your running motion.

Another fine leg exercise is the *Scissors Kick*. Lie on your right side and execute a stiff-legged scissoring action with your legs, something like the scissors kick in swimming. It must be very rapid, however, with about a hundred kicks per minute. The upper body should remain relaxed while the legs are kept stiff and swinging in a wide arc. Repeat this exercise lying on your left side.

Among the game activities which are fine leg developers is football kicking. Just plain punting, drop kicking, or place kicking are fine ways for getting better leg development while you are simultaneously perfecting yourself in a sports skill.

Some boys have weak feet and toes. If you feel that you could use additional work in developing your toes and ankles, you can try picking up pencils or marbles with your toes and putting them into your hand held at knee level. Try to do it without bending at the waist.

Then you can sit down and try to work a small towel into a ball under your instep by working at it with your toes only. At first, you may not be able to make it move at all, but, eventually, you will develop your toes, ankles, and foot muscles to

the point where you can bring the towel under your instep into a tight ball.

Finally, you can sit on a chair with your legs straight out before you, and clap the soles of your feet together as though you were applauding someone. Try to make a real clapping noise and avoid bending your knees when you are doing this exercise.

The variations of the full-squat exercise are numerous, and most of them make good leg drills. In one variation you assume the full squat position, bringing your right leg straight out to the side, with the other leg retaining its squatting position. Return the right leg to its original position, extending the left leg to the other side. Alternate with right and left legs in this manner as fast as you can for a dozen times.

Another variation is to get one of the legs straight out to the side and hold it there while you reach out for the toes of the extended foot with both hands. Try this exercise first toward the right then toward the left.

The Russian dance is another variation. From the squatting position, thrust your right leg straight out in front of you, bring it back under you, and repeat the same movement with your left leg. Try to do this fast by alternating thrusts with the right and left legs.

Still another variation is to have your right leg straight out in front of you in the full squat and come up to a standing position, raising your body with the left leg, the right leg still extended forward. Repeat with the left leg extended in the same manner.

At this point I want to stop long enough to sympathize with you. Here, we have been talking about all this work to develop you, and there is a lot more to come. Yet, most boys will probably think it is very dull stuff—and I'm forced to agree with them on many counts. There is little in the way of competition in this type of work to spice it up, so you will simply have to

HIGH KICKING



F.R.

make some sacrifice and force yourself to do it. It is up to you to muster your will power and carry on with the knowledge that it is bringing you ever closer to a strong, well-balanced physique.

Don't shirk the drills. One of the most important things they do is to give you a more confident mental attitude. As an example, suppose you and a neighborhood chum were planning to compete in a forthcoming race. Day after day he watched you practice and train and work in your yard or on the track, while he took it comparatively easy. When the day of the race rolled around, you could be fairly certain that his mental condition would be pretty punk, to say the least.

He would know that he had not done everything in his power to achieve good condition. He would be tormented by the thought that he had not used his time to the best advantage—plus the additional unhappiness of knowing that you had prepared to the hilt. Can you imagine his depressed thoughts? When it comes to the acid test, the boy who gives up is generally the boy who is not in condition.

But when you are in good condition and have done everything you can to get that way, you are in a position to make that supreme effort in the "clutch," backed up by hours of intensive and serious training—an effort which will brook no failure. This mental condition is the hallmark of the truly great competitive athlete and the truly great man.

Of course, running is an important phase of leg development. You can't run too much. Any man who has seen children run all day in their play will know that running is not harmful. But, for real development of your legs, it must not be plain, slow jogging. Speed is an asset of paramount importance in modern sports. In addition to that, the speed must be of a variety which starts off like a skyrocket. The quickness of your first move usually spells the difference between success and failure in stealing a base, outrunning a tackler, or evading your

guard to take a basketball pass for a scoring shot from under the backboard.

At the end of a regular gym workout, try to finish off with a series of sprints. Start from a variety of positions: the sprinter's crouch start, the baseman's lead off, the football back's three-point stance, or a standing start. But run at top speed from the word "go." Your sprint should only be fifteen or twenty yards. Stop after that distance, turn right around and sprint back. Keep this up without a rest, even though you get quite tired, until you have sprinted back and forth about twenty times. It is the work done in those last few sprints which will help to condition your legs for the strength they need in game-like competition.

Running in position is a fine leg exercise which you can practice right in your own room. It consists simply of running as hard as you can by moving your legs up and down in the same spot.

Another good exercise is *Knee Raising*. Hold out your hands before you at waist height and raise your knees alternately so that they hit your hands. Make sure you don't cheat by dropping your hands down to your knees. Charlie Paddock, who was once known as the "world's fastest human," used to practice this exercise constantly. He kicked so high that, on occasion, he would accidentally give himself quite a blow in the chin with one of his knees.

The Cross Kick is another great conditioning drill for the legs and waist. Holding your arms straight out at your sides, try to kick first the right hand with the left foot, then the left hand with the right foot. Repeat this a dozen times.

During all these leg exercises, don't forget that your other muscles also need attention. It happens that I am concentrating your attention on your leg development in this chapter, but don't forget to take relaxing drills which will give your legs a bit of rest while providing work for other parts of your body.

Never neglect to keep your general over-all condition toned up, even when you are concentrating on one part of your anatomy.

Jumping is another form of exercise which helps to build strong legs. It goes without saying that high jumpers and pole vaulters need strong legs. Basketball players are constantly leaping up under the boards, so they, too, require fine springiness in their leg muscles. It is no surprise that one of the leading volleyball spikers in the country is a former all-American basketball center. The combination of his height and his leg spring enables him to leap high enough to drive the ball straight down with terrific smashes. But he needs good conditioning. It has been estimated that in the course of a tournament the combined leaps of a good spiker would total the height of the Empire State Building in New York City.

Plain rope-skipping is a fine exercise, too, because it involves lifting your body weight many times in rapid succession. Boxers use it all the time. Gene Tunney got his legs into such fine condition for his fight against Dempsey that he could run the hundred-yard dash backwards in something like eleven seconds, according to some newspaper accounts of the period. Whether that is true or not, it shows how much importance was attached to his leg conditioning as a factor in his unexpected win over the heavy-hitting Dempsey. After being knocked down by Dempsey's pulverizing punches in their second bout, Tunney was able to get up off the canvas and keep out of danger until he recovered his senses. Then he was able to go on and keep the championship which his leg conditioning and boxing skill had won him.

About twenty years later, Jersey Joe Walcott also showed how important leg conditioning was in his first fight against champion Joe Louis. Walcott concentrated so much on his leg training that he was able to cope with the champion for fifteen rounds and win another crack at the title in a later match. In

his case, sports writers agreed unanimously that it was a clear case of speed and leg conditioning which enabled him to withstand the onslaughts of the great champion.

The squat jump is a fine exercise which involves bending and jumping. This is one of the ways to get strong legs. Start in a squatting position with your hands on your head and leap up as high as you can. Come down in the same squatting position. Bounce up and down in this way twelve times.

Standing on one foot and leaping up with a complete turn, first to the right, then to the left, is also a good jumping exercise. At first it is enough to land facing in the opposite direction from which you were facing at the start of the leap, but you should be able to work it up into a full spinning turn from a one-footed stance.

Simply jumping up to see how high you can reach from a standing start, then from a running start is also good work for the leg muscles and will help to prepare you for basketball and volleyball, among other games.

In practicing jumping or running skills, learn to carry your knees high if you want speed and shiftiness. Learn to run sideways, to the left and right, front and back with equal ease. All of this can be accomplished only by continued practice. Running on beach sand or soft soil is a good way of strengthening your arches. Spec Sanders, who once led the American Professional Football League in yardage gained, told a football writer's luncheon that he had developed his leg drive by running through the soft corn fields near his home. His main development came after he had already graduated from college where he was only a substitute on the football team.

Bike riding is fine leg exercise, but it should not be overindulged, because it may tighten up your leg muscles and lessen their flexibility.

The Piggy Back Ride is a particularly good exercise for building stronger legs because you can work at it with a friend.

Some football coaches make the players take turns in carrying each other twenty yards in the familiar piggy-back fashion. First, you carry your pal, then he takes a turn carrying you. If he is a heavyweight, console yourself with the thought that you are getting that much extra leg development.

Sitting in the "*Over The Hurdles*" position is a recognized method of training for high hurdlers. It has been carried over into other sports now, however, because it has proved to be an excellent method for limbering up your muscles and joints before participating in any active form of exercise or sports. The exercise consists simply of sitting on the turf in the position of a high hurdler's body in midflight over a barrier. The right leg is thrust straight out in front of you, and the left leg is bent and doubled back under you so that you are sitting upon it. Vary it by sitting with the left leg out in front of you half the time.

Among the many leg-bending exercises is the *Half Knee Bend*, in which you stand on your toes and crouch to a half bent position, hold it a moment, then straighten up. Don't drop down to the full squat in this one. The muscles you want to get at are best exercised in the half bend and slow return to an erect position. Keep on your toes throughout the drill.

Side leg raising is a tiring form of exercise which is fine for boys because it tires your muscles more than your heart. You will stop from physical exhaustion long before you can get heart fatigue. Get down on the floor on your side so that you are resting on the side of your foot or ankle, and are supporting your body off the ground with your right arm, hand flat on the ground, arm straight. Your left hand should be placed on your hip. Start with the feet together and lift the uppermost leg straight up into the air as high as possible, then return it to the feet-together position. Repeat this from either side until your legs feel quite tired. This is a workout which exercises the lateral muscles of your legs and side.

OVER THE HURDLES SIT

TRY TOUCHING
TOE OF RIGHT
FOOT WITH
LEFT HAND.

RIGHT ARM
STRETCHED BACK.

LEFT LEG BENT
BACK AS FAR AS
POSSIBLE, TOES
POINTING BACK.

F.R.

Hopping games, such as some versions of hop-scotch, are also fine leg-builders, provided you take turns in hopping one game on your right foot and one game on your left foot. The hopscotch game in which you kick a marker from box to box, all the while hopping on the same leg and kicking with that foot, is an especially good one.

The cross leg squat is a test of your leg power. Sit down, by crossing your feet and squatting cross-legged, then get up from this position. Do it with your arms folded across your chest, and keep your feet planted in the same position throughout the attempt.

If you buckle down to work, you can build up your muscles to withstand the strain of competitive athletics and to support your body in any emergency. But your task will not end with that achievement. It takes plenty of thoughtfully-planned work to keep your leg muscles at peak strength. It is not something you can work at for a couple of weeks and forget. You should continue it throughout your life. If you are prepared for a major sport, don't neglect your leg work in the off season. You can start working on such things as walking instead of taking the bus or street car if the walk is simply a matter of a mile or so. Walking is one of the best methods of keeping in condition once you have achieved physical health. A brisk hike at least once a week is something no boy should fail to enjoy.

Having developed your legs, you will naturally want to take good care of them in games of physical contact. Contests such as football require that your ankles be taped properly with elastic bandages. The idea is to give added strength to the joint and to help resist blows which may cause a strain or sprain. Of course, the knees will not be bandaged, unless under the advice of the trainer, because complete mobility must be maintained there at all times. Any kind of knee injury should be reported promptly to a competent supervisor or your family physician.

Bear in mind that the knee is the most vital joint in the entire body as far as an athlete is concerned.

Select those exercises in this chapter which you feel you would prefer to do because they appeal to you, and work them into your daily schedule. Perhaps you can try them all for a while, devoting about a week to each one to give it a fair trial. Once you have tried them all, you should be able to decide which ones you want to stick with throughout your regular training workouts. Your work will be rewarded, because you will be laying the foundation for a successful athletic career by building up the foundations of your body—the legs.

12. Arm and Shoulder Strength

OTHER MEN WILL OFTEN JUDGE YOU BY YOUR GRIP. ON MEETING you, they will shake hands, and the firmness of your hand-clasp may be a determining factor in their snap opinion of your strength and character.

Strong hands and wrists are vital equipment in many sports activities. In football, a tackler will frequently get only a piece of the opponent's jersey or grab a passing leg as the ball carrier thunders over him in the pile-up. If the grip is powerful, the tackler can stop or slow down the runner until reinforcements arrive to complete the job of knocking him down. Baseball, similarly, requires a good grip. In batting, it is a requisite to have good strong hands and wrists. The hands must grip the bat tightly enough to make it solid at the moment of impact, while the job of the wrists is to snap the bat through like a whip for terrific momentum as bat meets ball. Ted Williams' batting success is largely attributable to his remarkable pair of wrists. He can snap the bat through at the last possible second and thus avoid having to commit himself on bad pitches. It makes the pitcher's job a lot harder because the pitcher is unlikely to break a curve ball over against Williams for a called strike.

Paul Waner amassed a total of over 3000 base hits during his major league career. He and his brother, Lloyd, worked in the outfield of the Pittsburgh Pirates for many years and formed a most potent and feared one-two punch in the lineup. They

developed their wrists and arms partly by doing work and chores on their boyhood farm. However, they both wanted to be ball players, so they batted against each other for hours. Having no ball, or not wanting to chase it all over the place, they substituted corncobs and a stick for regulation baseball equipment. Hitting that whirling corncob was not an easy thing to accomplish. Hours of such batting practice developed their hands, arms, and shoulders, and helped to make them great hitters in professional baseball.

This little anecdote helps to emphasize what most coaches know only too well. Athletes must make the maximum use of their practice time. You certainly will have dozens of hobbies, school activities, Scouting meetings, entertainment and social obligations to attend to. It behooves you to make the most of whatever time you can allot to physical training programs. Be most serious about your work during this period or you may as well not bother doing it at all. Many sports coaches become positively unsociable during the regular playing season of their sport, because every minute is vitally important to the welfare of their team and can not be wasted or used for non-essentials. Time and time again, these coaches have seen a boy with very little experience work hard, drill on his weaknesses conscientiously, and perfect himself simply by not "fooling around" during practice.

After all, when you stop to consider the matter, it doesn't take any more time to develop a powerful physique than to develop a passable one. You will find, in far too many cases, that the star and the dub spend an equal amount of time in the gym. The difference lies in the fact that the star works hard all the time he is in training or drilling. He stresses the things which he knows he will need and is weakest at, while the dub does the easier things or just "has some fun."

Actually, there are not many exercises required for developing a strong grip. The grip depends upon the strength of your

fingers and wrist. I have already given you some exercises for them. Let's just remind ourselves of some of them and take a look at a few new ones from which you can select a repertoire of hand and wrist exercises to fit into your training schedule.

Twisting things is good work for the hands and wrist. It may be a towel, an iron pipe near which you happen to be standing, or even the large-sized caps of the preserve jars when your mother is canning fruits. Tightening such jars sufficiently by hand requires great power of wrist and fingers. Of course, you will have to put the finishing touches on the jar cap with a tightening clamp tool, but you will have accomplished your purpose of giving your wrists some exercise.

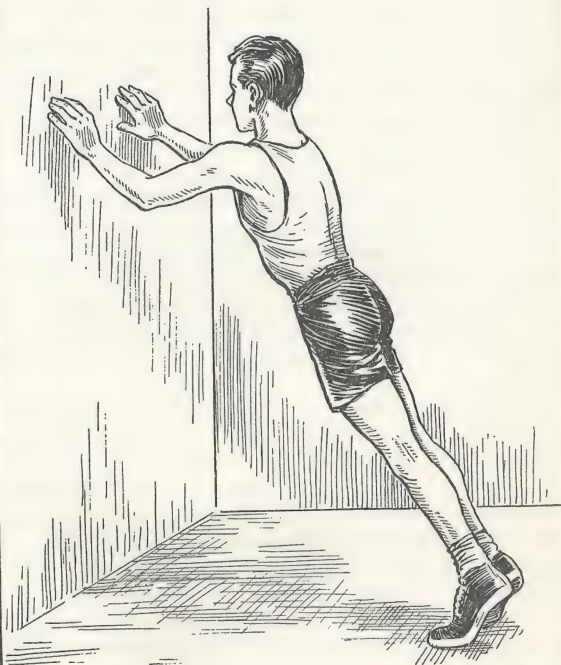
The fingers may be strengthened during some of your more conventional exercises. For example, in the pushups from the floor, put your fingers on the ground and raise yourself on your fingertips instead of your palms. This will strengthen the fingers.

Another way to get the weight of your body in on the finger strengthening is to lean against a wall with arms extended toward it and your fingers only in contact with the wall. Push yourself away from the wall several times without letting your palms touch it.

Another exercise is to place your hand on a table top and to push it away by the force of your wrist and fingers, while you are pressing down with your arm and shoulder. This comes under the head of resistive exercising, in which one set of muscles helps to develop another set.

I have found stories about dozens of athletes who said they increased the strength, the flexibility, and the span of their hands by doing the old tennis-ball-squeezing exercise. Major league infielders, crack football passers, and great basketball stars have found this an excellent means of hand training. Since it involves a simple piece of equipment—any rubber ball—and may be done anywhere, it is a particularly effective exercise.

FINGERTIP LEAN



F.R.

All you have to do is to squeeze the ball as you carry it around. Squeeze it about fifty times a day with each hand.

Rope climbing is another fine hand exercise. Your entire body weight should be supported by your hands without the aid of a thigh or leg clamp on the rope. Wrestlers do a lot of rope climbing as part of their wrist development. Incidentally, the sport of wrestling is, itself, a fine way to develop the wrists. The various grips and holds which you must get on your opponent can only be effective if you have strong hands. In trying to break an opponent's hold or to maintain one of your own, you will be strengthening your grip.

Quick reaction of the hands is very useful in sports and in many real life situations. Magicians use all sorts of finger exercises to develop manual dexterity. They will walk a coin between their fingers from one side of the hand to the other and back again, over and over. You might try this with a short length of pencil, walking it in between your fingers from thumb and forefinger to the ring and little fingers, then around the little finger and back again.

In the one-hand chin, you will be exercising your fingers and grip, because it is harder to support your body weight with one hand than in the regular method with two hands.

Your gym equipment will be useful in hand development. Take the dumbbells, for instance. Hold out a pair, one in each hand, and rotate them rapidly by turning your wrists back and forth. This aids in strengthening the entire arm. Next, place the dumbbell on the ground and pick it up with one finger. Use each of the fingers in turn for this exercise and graduate the side of the dumbbell so that you are picking up as much as your finger can manage to lift.

You can build a wrist and hand developer for use in the doorway of your room. Simply screw an eye hook into each side of the doorway at about chest height so that they are directly opposite each other. Then, get a fairly strong spring,

or a number of screen door springs. Attach one spring to each eye hook and the other end of each spring to a handle grip such as is used by clothing stores on the suitboxes which customers carry home. The springs should be short enough so that their ends are about a foot apart and must be pulled to meet. The exercising is done by gripping both handles in one hand; the fingers around one handle and the thumb hooked around the other. The handles are then brought together and released by the power of your hand contraction. Release them slowly to make your muscles work against the release of the springs as well as against the pulling together.

Additional finger development may be obtained by doing such stunts as bending soda bottle caps in half with the fingers alone. It is not easy, but I have seen many boys who could do it. If you can't do it with one hand, do it with the fingers of both hands working on the cap. If that still proves too difficult, try squeezing it between the heels of your palms. Any of these forms of endeavor will help to strengthen your wrists and hands, as well as the fingers.

Perhaps you may remember some marble games in which you snap the marbles at each other by hitting them with your finger nail. The way this is generally done is to hold the index finger back with your thumb until you want to hit the marble and then release the pressure of the restraining thumb so that the index finger snaps forward and pushes the marble at its target. Do this twenty times with each finger as rapidly as you can make them snap off the thumb, without bothering to hit at anything. You will find that the muscles of your fingers and wrist feel the strain of the exercise—an indication that it has done you some good.

There is no point in doing too much work on your grip, however, unless it is very weak. Practically everything you do will utilize the power of your hands and so develop them indirectly. This will be especially true once you embark on

a program of gymnastics and weight-training drills. It is possible to get too much muscle on your fingers and to cramp them, but I don't think that any boy will devote the long hours of daily finger exercises which would cause this to happen, so don't worry about that angle of it.

THE UPPER ARMS

Many boys think that a lumpy, knotted ball of muscle at the biceps is an indication of power. That is not wholly true. It is far better for an athlete to have the long, flexible type of biceps muscles. Such muscular development can still harbor tremendous power without sacrificing utility.

The popular pushup exercise, in which you lie face down on the floor and lift up with the strength of your arm thrust, is very good for upper arm development, provided you push up high enough to straighten your arms out completely. This is where the maximum benefit comes—in the lengthening of the muscle as it does work.

Baseball pitchers and forward passers in football will begin a practice session by loosening up their arm muscles. If you watch them closely, you will see that they reach out slowly with their arms, pulling out the arm muscles gradually before placing greater strain on them. Their special brand of exercise is throwing things. This is a natural activity which cannot fail to develop your arms and shoulders, if you do it properly. There should be no jerkiness in your throwing, and the weight of your body ought to go smoothly into each throwing effort.

Going through the motions of a baseball pitcher is a good form of calisthenics. The arm should not be whipped through the pitching motion, however, because the lack of weight, as represented by the ball, may strain the shoulder muscles. Do it easily, with a free-swinging movement.

In addition to the regular pushup, you should try the one-hand pushup from the floor. It is done in the same manner,

except that your body is turned a bit more to the side, and just one palm rests on the floor. It is pretty hard to do this at first, but after you have built up your arms and shoulders somewhat, this exercise should be well within your ability. Later you may even do it with only the fingers touching the floor.

You can make a game of the pushup exercise by anchoring your toes into the regular position which is taken for this drill, then, instead of doing the pushup from the floor, stretch your body away out without touching more than one hand to the floor at any time and see how far out you can make a chalk mark on the ground. It is best when your toes maintain contact with a wall during this stunt, especially when you are doing it competitively, because then you will know that there was no "creeping" or unintentional "cheating." Trying to beat your own best mark will furnish you with a fine workout any day.

Incidentally, in doing the regular pushups, make sure that your buttocks are in line with the rest of your body at all points of the drill. There should be no arching of the back, or picking up or sagging downward of the buttocks—the body must remain in a straight line during the exercise for maximum muscular benefit.

Intelligent exercising will even strengthen shoulders which have been injured in some way. An outstanding example of this occurred in the case of Cecil Isbell, who played in college football with a chest strap and chain band to keep a shoulder separation in place. By the aid of constant exercising and strengthening of his shoulder muscles he was able to continue playing. He played well enough to become an All-American at Purdue University and all-pro with the Green Bay Packers. He was the fellow who threw most of those passes which Don Hutson, the record-breaking forward pass receiver garnered in.

Most of your weights may be used for arm and shoulder development. The dumbbells, for instance, will add to your devel-

opment, because they will make your muscles work harder even during the ordinary arm calisthenics. Some of the exercises in which you can use the dumbbells may already be familiar to you through your school gym and setting up drills, but I want to remind you of them.

Exercise One. Stand with the arms stretched straight out at your sides. Start this exercise with one-pound dumbbells and work up to ten pounders as your strength develops. Rotate your arms in a clockwise circle, describing an arc of about a foot in diameter with your wrists. Do this until you feel a decided strain throughout your arm, then, from that moment, make twenty more turns. Repeat the drill by swinging your arms in a counter-clockwise circle.

Exercise Two. Use one-pound dumbbells at the start and increase them to about five pounds as you develop. In this exercise, the important thing is to do it with a snap. Speed of movement is the essential thing here. Begin with the hands down at your sides. In a fast four-count beat bring them up in front of you, out to the sides, back in front, and down to your sides again.

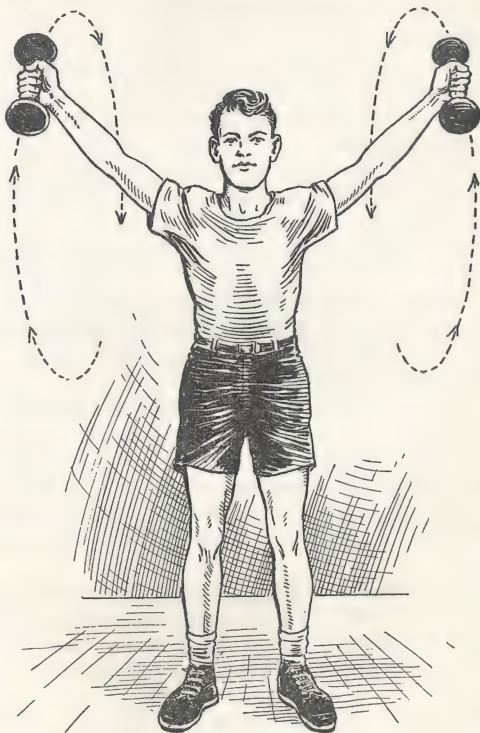
Exercise Three. With the same weights and count, bring your arms from your sides directly over your head with a front arm swing, down to a position straight out in front of you, back up overhead, and all the way down again.

Exercise Four. With the same weights and fast count, bring your arms from your sides directly over your head with a side arm swing, then to a position straight out at your sides, back up overhead again, then all the way down.

Exercise Five. Hold dumbbells of the same weight up against your shoulders with bent elbows and punch them straight out in front of you alternately, first right then left hand. Snap them out fast and bring them back the same way.

Exercise Six. With a five-pound dumbbell, swing your right arm in a wide arc across the front of your body and overhead.

ARM ROTATION



F.R.

Do the same with your left hand later. Repeat the exercise with a dumbbell in each hand and making alternating windmill swings. Swing each arm first in a clockwise, then in a counter-clockwise circle.

Exercise Seven. With the two-pound dumbbells held at the shoulders and your elbows bent down close to your sides, shoot the hands straight up into the air, alternating right and left hands in the exercise.

Exercise Eight. Holding a one-pound dumbbell in each hand out at your sides, whirl them back and forth as rapidly as your wrists and arms can make them spin.

The chest weights are also fine arm and shoulder developers. Most of the exercises which I have given you in chapter IX, under the chest weights section, should be used in conjunction with arm development routines. Move the weights up and down in easy rhythm keeping your arms stiff at the elbows in the free swinging drills.

Tossing the medicine ball back and forth is a good way to get exercise for your arms, too. If you have no buddy, you might simply toss it up into the air and try to catch it in its downward flight. I once watched a couple of huge track men tossing an iron shot back and forth as though it were a baseball. This was their idea of having a bit of fun while building their bodies.

Using the high bar or parallel bars on your outdoor gym unit cannot fail to help your arm development. To get up in a handstand, for instance, you have to pull yourself up with your arms. To stay there, you must support your weight with your arms.

Tennis players sometimes work on their wrist and arm development by swinging a racket for fifteen or twenty minutes. Batting a tennis ball against the side of a building or against a handball wall will help in the arm development, but it tends to give more attention to the right arm which is doing the

major portion of the work. There should be some work for the left arm, too.

Any kind of pulling or pushing exercises are good for the arms. The pulling or lifting type of work is generally overdone because the biceps are used, and it is most natural to lift or pull things toward you. The muscles behind your upper arm, the triceps, should be given some attention, too. These, of course, are the muscles which give power to your punches. In our great hard-hitting boxing champions, the biceps are long, smooth and flexible—not balled up or corded in knots. The triceps are also unusually developed by reason of hours of punching at light and heavy bags. Use your punching bag for triceps work.

It is best to make your arm and shoulder exercises the concluding feature of your daily workout. You need some sort of relaxing or cooling off work after a heavy session of physical activity. The calisthenic arm exercises with the dumbbell weights will serve admirably for this purpose.

Remember, it is very easy to put muscle on your arms and shoulders. Don't concentrate on these exercises unless you are poorly developed in this respect. In the course of your other exercises, the arms and shoulders are almost certain to get the work which they need.

13. Strengthening Your Neck

LOU LITTLE, FAMOUS COLUMBIA UNIVERSITY FOOTBALL MENTOR, once told a story about an outstanding center whom he had coached. The athlete was good enough to make the varsity, but Lou was concerned about his neck and shoulder strength. It seemed that the boy should have greater development to meet the rugged demands of collegiate grid competition. Lou sold him on the idea of doing bridging exercises in his own room. The center was told to stand on his head, do forward and back bridges, and to practice all manner of somersault rolls. As he exercised, his neck muscles began to grow and strengthen. Then, one day not too long after he started his program of training, the boy came to Little's office and hung around, seemingly reluctant to speak what was on his mind. Finally, he screwed up his courage and went to see the old maestro.

"Coach," he said, "I'm afraid to go on with those exercises."

"What's wrong?" Little asked quickly, a thousand dire possibilities leaping into his imaginative mind.

"Well, I think they'll just make my neck too big for my shirts. I can't afford to buy a whole new wardrobe."

Lou Little relaxed and smiled. It seemed like a remote possibility to him.

"Don't worry about it, lad," he said, "If those exercises develop your neck that much, I'll buy you the new shirts." He probably added mentally, "and, I'll eat the old ones."

Fortunately for his digestion, he's not the kind of man to

hold himself to unreasonable promises. He had underestimated the power of conscientious training, because the boy's neck developed from a size 15 ½ to a 17. Lou personally footed the bill for a dozen new shirts, but he was greatly pleased. It was not only that the boy became a better football prospect because of his added power, but it was also thrilling to see what tremendous added confidence his new development gave him in his playing and in his personal life.

Study the lives of the men who have won out in the battle for success. Invariably, you will find that each great story is framed in an aura of confidence. These men succeeded because they went out and met competition head first. They had no thought of failing.

The best way to develop this confidence is to know that you have done your best in conditioning your body. Then you are always certain that you have a chance to win when you come up against your sports opponent. It is especially important to develop the neck muscles for competition in such physical contact sports as wrestling, football, and boxing. A man with good neck development will have confidence in his ability as he makes contact. Most shoulder and neck injuries happen to an athlete because he drops his head at the moment of contact, or shirks a forthright attack at the last moment and twists his body into a vulnerable position. You can see for yourself how dangerous this is by making a simple test.

When you hit something with your head up and shoulders squared you form a line of rigidity from the top of your head to the base of your spine. Dropping your head creates a potentially dangerous situation because the head can be snapped down against your chest with serious consequences. In football, if you keep your head up, it will slide right past your opponent so that you hit him high up on your shoulder. The same applies to wrestling, diving, sliding into a base, and many other sports fundamentals.

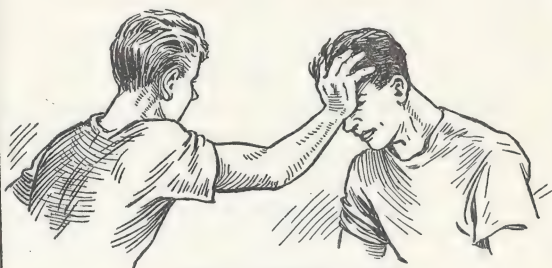
First let's try the bridging exercises, which are very good for neck development. Get a small pad and place it on the ground. At the start of the exercise you lie on the flat of your back with your head resting on this mat. Then, arch your body so high that the soles of your feet and the back of your head are the only parts touching the ground.

After you have gained proficiency in this exercise, you must learn to rotate your body around to the right or left and make the arch in your back higher by using your head as a pivot and moving about on your legs. The head stays in one spot on the mat during all these exercises. Continued practice on this exercise will greatly develop the neck and shoulder muscles.

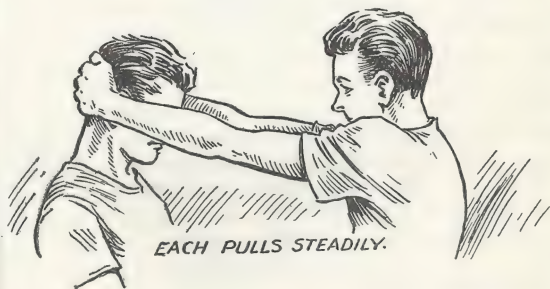
Another exercise which is pretty easy to work at requires the cooperation of a friend, although you can do it alone, if necessary. Stand or kneel facing your friend. He should reach around your head with both hands and pull firmly toward himself. Your job is to resist the pressure of the clasped hands by forcing your head back against the pressure of those hands. Next, your friend moves his hands from behind your head and places them under your chin. You now try to bend your head down against the pressure. After this, pressure is applied against the right side of your head, then the left side of your head, while you press against it. The resistance of your muscles to this pressure helps to build them up. Use only enough pressure against your head to balance the force of the neck resistance at the outset of these exercises. Later on, your neck will become so strong that you will be able to use a great deal of pressure from any side. Lacking the cooperation of a friend, you may apply the pressure yourself, or press against the horizontal bar of your outdoor gym unit, setting the bar at the five-foot height and placing a pad against it so that you will not bruise your head.

The bridging and pressure exercises are wonderful, but there are also a series of stretching exercises which you must try.

HAND TO HEAD DRILLS



EACH PRESSES HARD.



EACH PULLS STEADILY.

TRY RESISTING YOUR OWN HANDS

F.R.

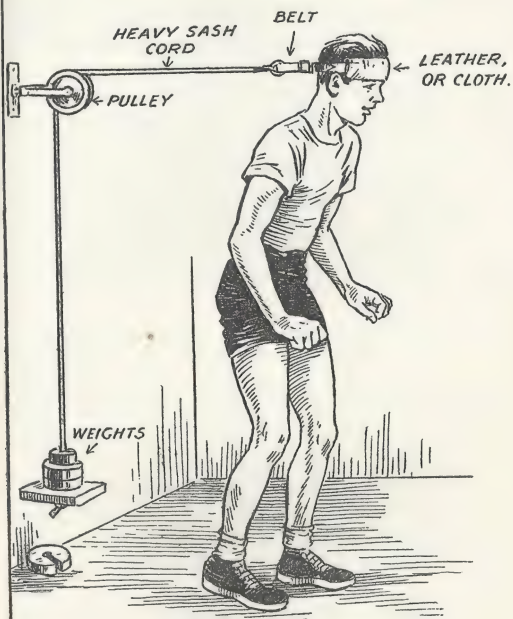
These are particularly good for boys who are just beginning to develop their neck and shoulder muscles. One which you can do almost anywhere is to stand erect and turn the head slowly to the right then to the left as far as possible as if attempting to make each ear touch the back of the neck or your backbone. Then, reach out for each shoulder blade with the point of your chin. Also, try to touch the shoulder blades with each ear.

These workouts should be followed with some caution at first, with increasing effort as your neck gets stronger and larger. Every boy should pay special attention to the muscles which he will be using in his favorite sport. Of course, you must develop all of your muscles, but a certain few may need extra work to withstand the strain of the special techniques involved in something like football tackling, where good shoulders and neck development are particularly important; or in pole vaulting, where a good upper body is an absolute necessity.

After your neck has become fairly strong, you will be ready to tackle some of the weight-training exercises such as the one in which you lie on a bench and lift a weight which is fastened to a band of leather. The band is passed across your forehead, and you lift the weight with it by picking up your head. This type of exercising is extremely strenuous and should not be attempted until you have done a great deal of preliminary work with the bridging and pressure exercises. Fellows who can lift weights are near the stage of the professional strong man who pulls an automobile by a rope tied to a mouthpiece held in the teeth. Of course, it is his neck which takes much of the strain. The same goes in the case of the circus high wire performers who hang on by their teeth while they are spun around.

Headstands are fine for neck development. The simplest is the three-point stand, using your hands and head to form a tripod. I will tell you more about the technique of doing this in the chapter on coordination and agility. It is a good neck exercise.

FOREHEAD STRAP



7.R.

Standing with your head on the floor, with feet propped up against the side of a wall, is another easy way to put helpful pressure on your neck muscles without requiring the ability to be an acrobat. One heavyweight fighter used this exercise as part of his training routine.

In doing the neck-rotating drills, try to resist the movement of your head by straining at your muscles, in order to get the benefit of a sort of passive resistance to the movement of the head. It is the principle of muscle-tensing again.

Seeing how high you can reach up with your chin can be a form of neck development. All these neck drills must be taken in moderation, because you are dealing with a delicate and vital part of your anatomy. You want to strengthen your neck, but not to cripple yourself for life through excessive zeal in exercising. We certainly don't want you to dislocate your neck in an effort to reach the backbone with your chin, for example. Try hard enough so you can feel the muscles pull and stretch, but not too hard.

You can use your chest weights to help with your neck development. Attach a forehead band to the grip of the chest weight, stand facing toward the machine and pass the band around the back of your head. The band should be fairly high up on your head, not down on your neck. Bend your head back and forth slowly against the pressure of the weights.

Now, turn around facing away from the machine, pass the band around your forehead and repeat the exercise, bending your head slowly back and forth, resisting the pressure of the weights. Don't put more than two pounds on the weights in your first trials.

Of course, there are other neck development exercises throughout this book which you can apply to your special neck drills. Such things as the tractor pull game, supporting your weight between two chairs, and the like are as much neck exercises as they are general body building work. Also, most

tumbling work involves some use of the neck muscles. When you do a simple forward tumble from a standing crouch position, you are providing beneficial exercise for your neck and shoulder muscles. Another way of doing such work is to lie flat on your back and roll backwards over your head so that you wind up on your hands and knees. In baseball, going after high fouls makes you twist your neck about and keeps your head up in an effort to locate the ball and keep track of it until you catch it. This is an instance of how a sports activity will give you a specialized kind of exercise without your realizing it.

A formal exercise which is quite strenuous and which should be reserved for the time when you have been working on body building for about a year is to kneel on the ground on all fours, to place a ten-pound bag of sand on the back of your head, balancing it there, and to lower your head ten times without moving the rest of your body. After doing this for several months, you can graduate to an even more strenuous neck stunt. Try lowering your head and tossing the bag weight over your back. Go easy on this one and build yourself up carefully for the day when you can do it.

Remember that, along with the development of the neck and shoulder muscles, you must retain or develop the mobility and suppleness there. You must not become muscle-bound, or you will lose your effectiveness in working and playing.

Again, I suppose I ought to mention the fact that I realize you will not find most of these neck calisthenics and drills particularly inspiring after you have been doing them for a week or so. It is the hardest kind of work to stick to, but you must remember that you are not just building your body—although that, too, is an important aim. You are preparing yourself to compete against others in sports and in life. Competition is the spark that kindles the fires of sportsmanship. This goes for practically any activity in which you may become interested. You can prove it to yourself by remembering how impatient

you are to start a game when you are just shagging flies with a bat and ball; or how quickly you get up a basketball game as soon as enough fellows show up. It is the game—the competition—in which you are interested. And, as far as I am concerned, that is all to the good. I believe that a game which isn't worth winning isn't worth playing, and that you should try to win any serious game you get into. But you will have to be physically fit to do this. What you are now doing is getting your body into the best possible physical shape in order to be in a position to accept coaching without wasting time on muscle building.

14. *Building a Strong Torso*

NOW WE COME TO ONE OF THE MOST IMPORTANT SECTIONS OF the human machine—the torso. The body trunk is a case in which practically all of the vital organs are contained. The outer wall of muscle and bone helps, in a great measure, to protect these internal organs and, in a large sense, helps to keep them functioning at peak efficiency.

For example, if your chest is flat, your lungs will not be operating at full capacity. It is possible to get along on about a quarter of your full lung power, but why should you just “get along” when you can always feel full of pep and vim? Oxygen is the energizing element which enables your muscles to work. In hard exercise or work you need a lot of oxygen. It can actually be said that you live in proportion to the amount of oxygen you breath.

Another bad feature of flat-chestedness is that it usually indicates a weak or drooping diaphragm. The diaphragm is the partition of tissue which separates your abdominal organs from those in the upper torso. One of its main functions is to force air in and out of your lungs. If it sags, the lungs will not be working at full capacity, and, consequently, your heart action will be slowed down, too. So, you see, your well-being may depend on a good physique in more ways than you imagined.

It is not particularly difficult to overcome the physical handicap of a flat, sunken chest. Many of the exercises which I have given you for use with chest weights: the parallel bars,

the rubber tire gym, the rope, and other home gym equipment are especially suitable for torso development. Work on wide arm-swinging exercises, using light dumbbells, will expand chest muscles. But don't stop with the end of your exercising period. Try to remind yourself all day to keep your stomach sucked in and your chest thrown out. Make it become a habit by constant reminders. If your chest is below par, remember to take deep breathing exercises in the outdoors, along with your regular backyard gym workouts. Here are some exercises which you can do with your chest weights for diaphragm improvement and upper torso development.

Exercise One. Hold the chest weights up to your face, one against each cheek with your elbows straight out to the sides. The weights should be drawn about half way up on the pulleys as you stand away from the machine. Now, with your stomach sucked in, swing your upper body in a circle, bending to the right, then bringing it forward, to the left and back. Keep circling in one direction twelve times, then circle back in the opposite direction, bending as far as you possibly can toward each direction at all times during the exercise. The feet must remain in position, and all movement should be done from the waist up.

Exercise Two. Hold the chest weights out at arms' length to either side of your body as you stand facing the machine. The weights should be half way up the pulleys. Suck in your stomach and flap your hands up and down slowly in the manner of a bird flying. The arm movement on this one is straight up and down, inhaling deeply as your arms swing up, and exhaling on the downward beats.

Exercise Three. Stand facing the chest weights with your arms extended straight out in front of you toward the weight machine. The weights should be resting just off the ground as you start the exercise. Hold the grips with your hands, palms up, and curl your hands back toward your shoulders until you

touch the shoulder blades, inhaling deeply on the curl motion and exhaling as you straighten your arms out again. Repeat this twelve times.

The deep-breathing exercises are important to attend to at least twice a day. You can do them even while you are taking a hike or walking to school. Just inhale deeply twelve times in the following manner: breathe in slowly for six steps, then exhale for six steps. Try to work this up to inhaling for ten steps and exhaling for ten steps to make your breathing as deep as possible. It is sufficient to take this deep breathing exercise for just twelve full breaths, since more than that will make you dizzy. The idea is merely to help establish the deep breathing, correct-posture habit.

For pure and simple expansion of your chest wall and the strengthening of your pectoral muscles, your weight training exercises and muscle tension exercises are hard to beat. Any place you are, you can push your palms together hard with the elbows out. This, as I have already mentioned, is a sure way to add inches to your chest girth.

Proper posture is vital. It conserves the strength which goes into combating the stresses of an out-of-line skeleton. So, throw out that chest and suck in your stomach. Let the stomach wall serve as the belt for keeping your abdomen in.

In many instances, boys neglect to get enough exercise for their abdominal muscles and permit them to become flabby through disuse. It is the function of your waist muscles to hold the stomach, intestines, and other vital organs of the lower torso in place. The abdominal muscles must be given careful attention throughout the rest of your life to see to it that they stay firm. A flat, hard stomach is one of the surest signs of a physically fit individual.

If you are one of the fellows who has been neglecting his body, your stomach wall may be weak. Grab a fistfull of yourself near your belt—take hold of the fleshy part of your side

near the abdomen and see how much slack there is. Rolls of fatty tissue indicate that you are certainly out of condition and need work. You cannot plunge into heavy work, however, until you have conditioned your unused body to withstand some strain. The amount of preliminary work which a boy should do prior to embarking on a full schedule of "belly exercises" depends upon the individual. To play safe, take at least two weeks of preparatory exercises, largely consisting of calisthenics such as the following series of abdominal conditioners:

Exercise One. Raise your hands over your head and try to touch the floor with your finger tips without bending at your knees. You don't have to touch the floor at first. Allow your muscles a chance to get stretched and limbered up. That is the main purpose of this exercise at this time.

Exercise Two. Raise your hands over your head, inhaling deeply as you do so. Lower them slowly to your thighs, simultaneously dropping your head slowly so that your chin rests on your chest. Suck up your diaphragm as high as you can. Exhale when you have touched your chest with your chin while your palms are resting against the fronts of your thighs. Reach down with your hands to try to touch the knees, but don't bend your back, abdomen, or knees during the exercise.

Exercise Three. Stand with feet apart in an "at ease" position. Place your hands behind your neck and apply some pressure so that your neck muscles are competing against the force of your hand push. Bend forward as far as you can and straighten up. Bend back as far as you can and straighten up. Bend slowly, first to the right side then to the left side as far as you can and straighten up.

Exercise Four. From the same position, bend forward as far as you can and swing your upper body in a circle, keeping the knees straight and bending only at the abdomen. As you swing in this circle, try to reach out as far as you can in all directions.

Stay with these simple bending exercises for about two weeks

until your stomach muscles begin to limber up and have a reserve of strength to attempt the harder exercises which are to come. Remember that many of your abdominal exercises are also fine developers for other parts of your body, so you may be able to work out a complete body-building routine even though you are concentrating most of your attention on a weak midriff. Let's see about some of these lower torso exercises.

First is the sit-up, which may be done with or without weights. I mentioned it before. In it, you lie on your back and place your hands behind your neck. Hook your toes under some support, or have someone hold your feet down. Raise your upper trunk, keeping the legs flat on the mat and your upper trunk straight at all times. Bend forward as far as you can. Now, try to touch your left elbow to your right knee; next, your right elbow to your left knee. Lie back slowly and feel that strain on your stomach muscles. In the later stages of this exercise, you will not have anyone holding your legs down for you, relying entirely on your own ability to raise the upper part of the body while the legs are held flat to the floor.

With weights, this becomes a severe workout for the abdominal muscles. A ten-pound dumbbell is held behind your neck as you raise your upper trunk and lower it slowly. Repeat the exercise ten times.

Leg-raising drills also harden and toughen the abdominal wall. Lie flat on your back with the hands placed behind your neck. Now, bring both legs up together into a vertical position so that your body forms a right angle. Lower them very slowly and repeat a dozen times. This is another exercise which can be performed with weights. In the gym, heavy shoe irons are placed on the soles of your regular shoes and fastened there with straps. You can substitute for this device by tying a dumbbell across both shins so that it cannot slip off and hit you on the head when your feet are in an upright position. The added

strain of picking up this weight, and of slowly lowering it benefits the stomach muscles and leg muscles.

A variation of the above exercise puts a real strain on your torso, but it will also help to develop strength and flexibility in the muscles of your lower back and sides. Bring your legs straight up into the air as you are lying flat on your back. Your palms should be extended straight out to either side of you, flat on the ground. Working on a fast count of four, drop your legs straight toward your right hand on "one," bring them back up into the air on "two," drop them to your left hand on "three," and bring them back up into the air on "four." Keep your feet together during all phases of the counting cycle and try to work at a fairly fast pace. Increase the speed of your count as you get stronger.

The kick back is still another exercise which may be done from the flat-on-your-back-position. Bring your legs straight up over your head and try to touch the ground behind you with your toes. You can convert this exercise into a "rocker" by alternately touching your toes with your knuckles and then bending back to bring your toes up over your head to touch the ground behind your head.

The "squat and bend" is a combination abdominal and leg exercise. Start with your arms straight out at your sides and fingers touching your shoulder blades as you stand in an erect position. On "one," squat down to a catcher's stance; that is, sitting on your heels, simultaneously throwing your hands out in front of you. On "two," regain your original position. On "three," do a full bend, touching your toes without bending your knees. On "four," regain your original position. Repeat it a dozen times, working quickly.

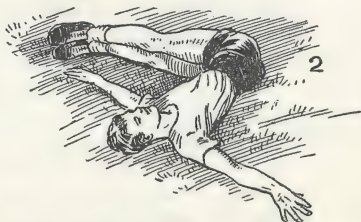
A real "toughy" is the Burpee exercise, developed by the Army to test a soldier's physical fitness as well as his improvement under a physical conditioning program. The Army considered that a physically fit man should perform this 50 times

BODY TWIST



1 AND 4

START AND FINISH
OF TWIST.



2



3

in smooth, fast rhythm without pausing to rest. Eight Burpees in 20 seconds was considered poor, ten fair, twelve good. Anything better than twelve rated an excellent score.

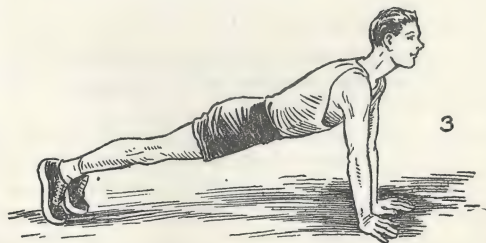
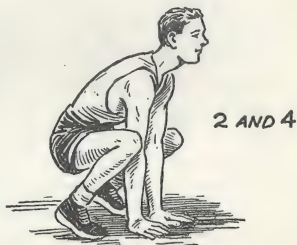
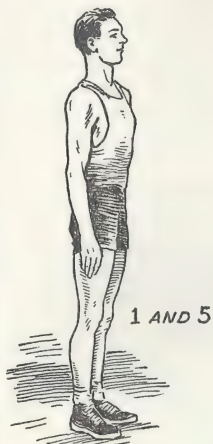
The Burpee is another four-count exercise, as are the great majority of calisthenic drills. Begin with an erect position, shoulders squared, head up, stomach sucked in, feet together, and arms hanging naturally down at your sides. Keep your head straight out in front of you with chin up at all parts of the drill. On the count of "one," drop to a squat with your hands straight down between your knees and palms touching the ground under your chest. On "two," throw your feet straight back so that your weight is resting on your toes and hands alone, exactly as it would at the top of the push-up drill. On the count of "three" thrust your legs up into the squatting position again, with your hands palm down on the ground right under your chest and your feet on either side of your hands. On "four," spring up to your original standing position.

Using your rowing machine, or actually getting out and rowing a boat will help your stomach muscles because of the bending involved. In addition to that, the chest muscles get work and your entire back is strengthened. You will rarely find as good a back development on any class of athletes as you will on crew men. A simple rowing exercise, which you can perform without any equipment whatever is to lie flat on your back and bring your trunk straight up, simultaneously drawing up your knees to your chest. Then, fall back to your original position, flat on your back. Repeat this about 20 times.

The squatting exercises are all excellent for your legs and abdomen. A variation which not many people seem to know about is to stand with the feet wide apart and hands straight up in the air. Bring your hands down between your legs, trying to touch the ground behind you. Reach back as far as you can without actually sacrificing your balance. This is a fine stretching exercise to limber up the long muscles of your body.

THE BURPEE

- 1 *ERECT*
- 2 *CROUCH*
- 3 *GROUND STETCH*
- 4 *CROUCH, AND BACK TO*
- 5 *ERECT*



Z.R.

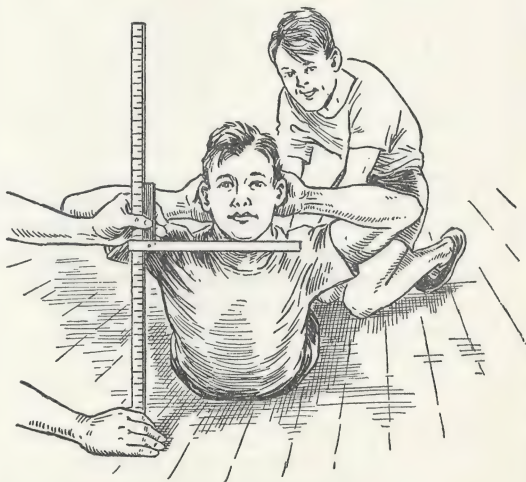
Trainers of professional athletes use many of these exercises as strengthening drills for their highly-paid charges. There was a football player back in the early 30's who was a crack full-back with the professional New York Giants. He suffered a broken back which hospitalized him for about a year. Immediately upon his discharge from the hospital he began a strenuous campaign of back-strengthening exercises. He regained his normal playing strength and, although the injury slowed him down a bit, he was able to return to play for another ten years in the professional ranks.

Baseball players have had similar experiences. Charlie Keller of the famous Keller-DiMaggio-Henrich outfield for the New York Yankees had to have a disk cut out of his spine late in his playing career. He got back into shape by exercising, and, when he came back to the training camp the year after his operation, one of the opposing players was moved to say, on watching the rugged-looking Charlie cavorting in the outfield, "there's the healthiest-looking invalid I ever laid eyes on."

If these, and scores of others, were able to develop injured bodies back into playing condition, certainly you ought to be able to bring a normal one to a high state of physical fitness. If you need all-around conditioning, get that, but if some part of your body, such as the abdomen, needs special attention, then concentrate on special exercises to strengthen it. A boy with a generally good physique will need less work than a boy who is out of condition—but, once you get yourself into good shape, you will be able to spend more time in learning the sports skills in which you are anxious to excel.

Meanwhile, work on body-building exercises such as the leaning tower stunt. This one starts with your legs a foot apart and your arms locked behind your neck. Lean forward as far as you can without losing your balance and stay in that position for a slow count of twenty. Repeat this, lean to the right side, then to the left. Finally, lean backward as far as you can and

BODY FLEXIBILITY



*HAVE A FRIEND, USING A 36" RULER
WITH A SLIDE ATTACHMENT, MEASURE
THE HEIGHT THAT YOU CAN RAISE YOUR
CHIN FROM THE FLOOR.
KEEP YOUR FEET ON THE FLOOR OR HAVE
SOMEONE HOLD THEM THERE.*

F.R.

hold the position. On the right and left leans, the knee on the side toward which you are leaning will be bent, but the other foot must remain in position throughout.

You may want to test your body flexibility. Have a friend hold down your feet as you lie flat on your stomach with arms locked behind your neck. From this position, lift your upper torso as high off the ground as you can, while another friend uses a yard stick to measure the height to which you are able to lift your chin. Certainly, it should be at least a foot. Top-notch athletes can get up over two feet in this exercise, particularly in the case of swimmers, divers, and gymnasts.

To prepare yourself for this exercise, and to get better scores on it in the future, you can try the stomach rock, which so many football coaches use as part of their grass drills. Lie flat on the ground, face down, lift your legs back as high as you can without bending the knees, and arch your upper torso up as high as you can by lifting your head and shoulders off the ground. Your body will now be like a bent bow. Rock it back and forth on your stomach as though it were a rocking chair base. Maintain the arched back at all times in performing this exercise.

Your high horizontal bar will come in handy for many of the abdominal exercises. For instance, there is the jackknife from a hanging position. Hang straight down by your arms and bring your legs up to right angles with your body. Keep them in this position as long as you can. It is brutal work, but it pays off in stronger stomach muscles. A variation is to scissor the legs in a stiff knee kick from this hanging position to get additional pull on the stomach wall band of muscles.

A tennis coach whom I met in the Bronx Y.M.C.A. some years ago used to spend a full twenty minutes after every gym or sports session on a mat doing stomach exercises. He said that he never felt quite right unless he got in this "belly work" every day. It certainly seemed to have done a great deal for him, be-

cause his midsection was hard as nails. His theory was that, once your stomach wall was hard, you should do your bending exercises only part of the way to add to the strain of the work. For example, once he lifted his feet off the ground in the leg lifting drill about which I told you a few pages back, he would never let them touch the ground again until he was through with that particular part of his workout. He would lift the legs up to right angles with his body as he lay on the ground and bring them down to within six inches of the floor, but never all the way back to the ground. In other words, he was not giving himself a chance to rest at any time during his exercising.

One of his "daily dozen" was the following exercise. Try it. Take a kneeling position, with your hands clasped behind your neck. Bend back as far as possible without sagging at the waist or sitting back on your heels. Hold this bend back for a moment and return to your original position. Repeat it several times.

Then, there was the following variation of the push-up. He took the regular face down, prone position for the push-up and brought his body up with the arm push. Now, instead of letting himself down, he brought the right leg up quickly so that the foot was under his chest and the knee outside of his right elbow. Then, he would bring it straight back to its original position, simultaneously drawing up his left leg. He would "run" in this peculiar manner as fast as he could for about twenty steps and wind up with five push-ups on one hand, first right-handed, then left-handed.

Wood-chopping is a great torso developer as you probably know if you have ever seen a crew of lumberjacks in action. The American axe has helped to clear the forests and create the great civilization which we enjoy today. Perhaps the tradition of good axemanship among our pioneer forefathers has lent an air of glamor to that tool. Certainly, I know that at Scout camps, the axe crews are the glamor boys of the pioneer-

ing and construction squads which clear new trails or fell dead timber. A couple of weeks at such work will harden the muscles of the weakest man.

Kicking exercises are also good for the abdomen. Punting a football is a fine way to get stomach work. Seeing how high you can reach with your kick is a good stunt which will help your back and lower torso. Hang a ball or any similar target from your horizontal bar and see how high it has to be hung to be absolutely out of your kicking range. Try kicking with left leg as well as with the right to distribute the benefit of the exercise throughout your body.

Some people might consider this sort of work to be downright drudgery, but athletes know better. I like the anecdote told about a football player of no great size. He was of the type of Albie Booth, of Yale; Davey O'Brien of the Philadelphia Eagles; Gene Rossides of Columbia, or others who were great without being big. These were the sort of athletes who were the first out for practice and the last in—generally chased in by one of the coaches. No wonder they had fine records and were rarely injured, despite their relatively small size—most of them weighing less than 155 pounds during their college careers.

After the last game of the season, a news writer cornered this particular player and sought a story about the "drudgery" of football.

"Pretty hard work, isn't it?" inquired the reporter.

"Hard work?" repeated the player. "Sure, it was. But it was a lot of fun to be out there winning those ball games on Saturday and—no work, no win."

Those last four words are your formula for success. Learn this lesson, and you are set for the rest of your life.

15. *The Sports Way to Strength*

WHEN THE HISTORY OF THE TWENTIETH CENTURY IN AMERICAN development is written, I am confident that the part played by organized sports will receive more than casual notice. I am convinced that the interest of the American boy in competitive sports, which are our most important form of physical education today, is a definite asset to him for the rest of his life. The American boy learns to kick a football and throw a baseball almost as soon as he can walk, while in some other countries a boy is taught to carry a gun and play at war. Here, the boy's earliest heroes are big league pitchers and all-American half-backs. This is normal and natural. In some other parts of the world, the boys' earliest heroes are men of military and nationalistic leadership, and that is neither natural nor desirable.

Physically, sports have helped to make the American people rugged and self-reliant. Mentally, sports have taught the American to be an individual who respects the rights of others and the rules of the game. The annual hysteria that is the baseball World Series is a real value as a release of tensions for millions of American boys and men. The same is true of inter-collegiate football games and the various other sports, both amateur and professional. When hundreds of thousands, even millions, of citizens can stop for an afternoon to be absorbed in a sports event lacking bloodshed or cruelty as a so-called stimulant, it is a good sign.

Despite the fact that our modern boy does not have to do

the heavy work which was required of the pioneer boy, he still manages to be a pretty healthy specimen. Not being required to hew timber, work on the fields, hike along for miles to get to school, or to perform the other hard physical labor required of the boy of a hundred years ago, the modern boy has substituted basketball, baseball, football, tennis, swimming, and other competitive sports for more fun and just as much muscular development.

It is a matter of record that today's boys are taller and heavier than those of two or three generations ago. Perhaps some of this improvement may be attributed to better food and medical care. Certainly, some of it is due to sports like basketball, which requires stretching, leaping, running, and, in general, the kind of exertion which led one medical authority to call it the most strenuous form of exercise short of actually fighting for your life. I have seen and played in many different sports, and I will go along with those who say that basketball is the toughest of them all. Modern court play, with its emphasis on speed and still more speed is certainly not a game for weaklings or poorly-conditioned boys. In the course of playing it you will build yourself in many different ways. Your agility, coordination, legs, wind, and muscular well-being are all improved.

The modern tendency to use the one-handed push shot calls for high-speed defensive guarding and requires the scorer to leap high, twisting his body in mid-air to make the shots, instead of posing for the relatively static two-handed set shot, which was about the only kind of shooting permitted by coaches of the old school. The contortions, spins, leaps, and great variety of unusual body positions in which a basketball player will find himself in the course of an exciting game gives a workout for his entire body.

The handling of the ball is a fine hand and arm developer. The catching and throwing is done in large measure with the

fingers, although the shoulders and entire body share in the work.

Basketball teams are composed of boys who are put through a rigorous training period before they start the season. Of course, they concentrate largely on the technical skills of their sport, such as passing, shooting, guarding, dribbling, and the like; but these are all genuine forms of exercise in the physical development sense of the word. Dribbling is a fine leg and coordination developer. Guarding an elusive opponent without fouling him can work you into a sweat on the coldest winter day. The professional basketball teams start their training season at the tail end of summer—going into the mountains to do calisthenics and conditioning drills before beginning to work on their plays.

This yearly conditioning work pays off during the regular season. A good illustration of what such conditioning can do for you may be seen any time you can get to watch a championship basketball team in action. They just run and run and run until they have run the other team into the floor, and at the end of the game they will usually have won largely on sheer superior condition.

What all this adds up to is that, if you are going out for basketball, you should first get into the best possible physical condition. With this added strength, you can become more receptive to learning the specialized technical skills of the game and can devote more time to learning the team plays and becoming a star. Once you have achieved some measure of condition in your backyard gym by pulling chest weights, doing push-ups from the ground, working on bending exercises with your weights, and so on, the sport will continue to keep you in good shape.

I interviewed Bob Mathias, an Olympic decathlon champion, soon after his victory. He was also an outstanding basketball and football player in his high school and prep school days. I

asked him how he kept in condition. His answer was that he never had a chance to get out of condition. In the fall he played football, in the winter it was basketball, and in the spring and summer it was track and field. Once he had achieved physical condition, he kept it through his year-round program of sports. Of course, you need a little period of transition, say about two weeks between football and basketball season, to give your body a little rest and to keep from going stale. During this period you should get some real relaxation, plenty of rest, and a complete absence of strenuous competitive sports. This period will give you an opportunity to put any overtaxed muscles at ease, to rebuild your growing body tissue, and to rest mentally. At many universities and schools, boys are not permitted to go directly from one sport into another without a compulsory two weeks' rest. Athletic directors realize that a boy needs that rejuvenation period, regardless of how anxious he may be to get started on a new physical activity.

Make yourself take this sort of rest in between strenuous seasonal sports. If you fail, you are risking a falling off of your playing efficiency during the season. Your ability will diminish, and you will wonder why you are fumbling those passes, or striking out so frequently when, if you had only taken that little rest, it would have permitted you to enter the new physical program with renewed vigor and much greater ultimate endurance.

On the other hand, let's not stretch that two-week rest period on and on until it lasts from football season until summer. Only a bear need go into complete hibernation for the cold season. You need just enough rest to keep you from stagnating. Even if you are not interested in basketball, for example, there are plenty of indoor and outdoor sports to keep you occupied. Skiing, ice-skating, hockey, and winter hiking are all good for you. Indoors, you may try volleyball, badminton, handball,

swimming, gymnastics, and other activities to keep in trim for the warm weather season to come.

Playing the rugged fall sport of football is another top-notch way of keeping yourself in condition through sports. It is a physical contact sport, and, consequently, must be approached with an entirely different outlook from sports such as tennis, softball, swimming, track, and the like. For instance, no boy who is out of condition and untrained in the fundamentals of boxing would consider for a moment going into the ring and sparring with a fellow who has been in serious training for months. He knows that the other fellow would be in better shape to take a stiff wallop and that the boxer who is outclassed is liable to get hurt. One thing is true of all physical contact sports—your opponent will be trying hard all the time, and has no way of knowing when you are tired.

In tennis or track, you can stop playing, and the worst that can happen to you is that you will lose the contest. But in a physical contact sport you are sure to get hurt because the other fellow keeps right on playing hard. He doesn't know that you are relaxing, and he is taking no chances on getting hurt himself.

So, when a boy approaches his first session of physical contact activity without having prepared his muscles to meet impacts, he not only risks the possibility of injury, but actually may become "gun shy" and avoid the forthright action which is required in sports such as football, boxing, basketball and baseball. Even though the latter are not generally considered physical contact sports, you must have courage to slide into a base, to be pivot man on the double play when a man is sliding into you, or to dive after a loose ball in the scramble under the basket.

Even if you have been exercising conscientiously, you must devote some time to special drills before you take part in physical contact sports. You will need three general types of drills. First are the grass drills which all football coaches use in spring

training and in the preliminary sessions before the regular fall season. One of these drills requires you to stand erect and fall to the ground in any direction called for by a friend who is directing you. He may say "back," in which case you drop to the ground flat on your back, not necessarily in a stiff, dead-man's fall which would jar your whole body. The point of these falling exercises is to get accustomed to contact with the ground and to learn how to fall without hurting yourself. Another grass drill is one which you have learned earlier. It is to lie face down, make an arc of your body and rock back and forth like a chair rocker. Finally, you should try running forward and doing a complete somersault roll on the grass by bending low, tucking your head under as you contact the turf with the shoulder and back. Finish the complete roll by coming to your feet and running a short sprint—all without stopping your forward motion.

The second category of hardening-up exercises for football include blocking and tackling on a dummy. You may use your heavy punching bag for these exercises. Stand it on the ground and throw your body blocks against it. For the tackles, you may have a friend hold it suspended over the high bar by a rope. He should release the rope after you hit the dummy and begin driving it forward with your leg charge. These drills also combine football fundamentals with exercising, so you are getting a double benefit.

The last type of hardening exercises is that in which you use a football. Punting is one of them. Throwing the football is another. Catching it is a third. All these involve a complicated use of important body muscles. But the most popular and beneficial one for football players is falling on the ball. A team mate stands off to the side and rolls the pigskin out on the turf. It is your job to fall on that elusively bounding ball. You will find it quite a trick to time its movements accurately and to avoid landing on hard turf—minus the ball.

SOMERSAULT ROLL

1

START WITH RUN.
DROP ON HANDS
AND TUCK HEAD IN.
ROLL OVER.



2

WITHOUT HALTING, CONTINUE THE
MOTION, GETTING ON FEET.

ing,
d run.
icycle

Of course, the football squad will undergo training in a formal series of setting-up exercises and calisthenics, but once they have gotten into shape they keep that way by actual play and practice on football skills.

In the old days, footballers traditionally got jobs at hard physical labor during the summer vacation in order to get into shape for the coming football season. Modern coaches, however, do not believe in this system. They are not against hard work for boys, but it has been their experience that the hard work fails to keep the lads from getting sore muscles after the first scrimmage. The reason is that the summer work is generally fine for the wrong sets of muscles. It would make strong backs and arms, but the players would tighten up because they had had no running or charging from the line or backfield stances. Now the summer work is carefully outlined by the coach and even if the player becomes an iceman as did Red Grange, or a road worker as did Lou Little in his playing days, he still must spend some of his time on practicing pulling out of the line, sprinting, ball handling, and so on. Consequently, when the players get back to school in the fall they are usually ready to take part in a scrimmage right off the bat. Those who are not ready are moved aside and worked into condition with exercises, but they can get pretty far behind the rest of the squad. Knowing this, most of them report in good shape.

Football, of course, places high value on leg drills. The backs practice high, stepping runs through a maze of automobile tires. The linemen drive against charging machines or push heavy charging sleds around. The ends sprint over and over again until their tongues are hanging out, and then sprint some more. In football, as in basketball, the team which is able to carry on through the final stages of a game at top speed can win if their ^{your} wind, and condition are at a peak. This is the reason why quite a ⁷ football teams are able to win in the last minutes of landing

Many modern coaches, whatever their sport, believe in giving the athletes an additional bit of work at the end of a hard drill. Just as the players feel that it would be nice to quit and get to the showers, the coach will give them a taste of the conditions which can prevail in the last quarter of a football game, or the last lap of a hard, long run. The players are lined up and told to run 20 yards as fast as they can, turn around and sprint back. Even though they are too tired to get their normal speed, they are kept at it because this gives them the added bit of conditioning that serves them in good stead later in regular competitive play.

Incidentally, almost any game you play has the equipment for providing you with body-building exercises. A basketball can be used for dribbling, which exercises arms, legs and abdomen; for passing, which exercises the upper body; for shooting, which exercises most of the body. The football has many of the same functions as the basketball, in addition to which it can be kicked for leg and abdominal workouts.

In baseball, you have a ball which can be thrown, and a bat which may be used for many of the exercises which I have given you for use with a stick or pole. The bat may be used as an Indian club or as a dumbbell. All this is in addition to the regular exercise which the sport of baseball ordinarily provides. Swinging the bat at a pitched ball is a pleasant form of exercise as any player knows who has tried to get a team mate out of the batter's box so that he can take his turn in batting practice.

Professional ball players report to the training camps in varying stages of condition—most of them needing plenty of exercise after a winter lay-off. The first few weeks are spent in doing calisthenics, jogging, and other muscle-conditioning work before the squad gets down to work on the fundamental boxing, of their game.

When you are practicing runs for baseball, make a road run from normal baseball positions such as the bunting, bicycle

the plate, from the leading-off-base position, and from your usual fielding stance. The quickness of your first move on the field usually spells the difference between success and failure in stealing a base, or coming up with a tough grounder off to the side. Those first two or three steps taken at skyrocket speed right from the start will give you the opportunity to beat the play.

Track athletes are constantly in condition by the very nature of their sport. The regular training schedule of a track or field man always includes calisthenics and apparatus work, in addition to running. They warm up before they begin practicing in order to avoid muscle strains and rarely try for a record during their training sessions. The average track man's schedule calls for work on the technical fundamentals of his specialty at least three times a week, in addition to conditioning exercises to develop the muscles he needs most. In the case of a shot-putter, he will work on the horizontal bar, push-ups, and chest weights to strengthen his upper body and shoulders. He will also devote time to footwork in the shot-putting circle, and possibly do a bit of sprinting and take a hurdle or two for better agility. Three or four times during the week he will toss the shot, concentrating mainly on his form and not worrying about distance at all. Finally, on Saturday of each week, he will make his bid for a new personal record, or participate in competition.

Coordination is the secret of success in track and field. Athletes like Bob Mathias and Irv Mondschein, both outstanding decathlon performers, are good in practically every track and field event because they have extraordinary coordination. This coordination carries over into other sports such as football, basketball, and so on. With great athletes, this coordination has become a subconscious process, almost as breathing is in the person. Such coordination has permitted athletes to excel in quite a few different sports, as in the case of Ellsworth Vines, who won the gold medal in boxing.

who was a tennis champion and then became a money winner in professional golf tournaments. Sam Byrd, once of the New York Yankees, was a fine ball player and later became a competent professional golfer. Many football players star at wrestling, boxing, water polo, or handball in the off season. Others play on the basketball and baseball teams of their universities. Ken Strong, who established many records with the New York Giants professional football team, was a good enough baseball player to establish home run records in many minor leagues. He would probably have become a major leaguer, except for his great love for football, which he refused to give up.

College crew teams toil in relative obscurity. No one knows about them until their brief spring season, and then the only spectators may consist of coaches and officials. Yet, these athletes undergo one of the most rigorous training regimens in order to achieve fitness for their sport. Crew men spend a lot of time working on back and arm development. They pull weights, work on rowing machines, do gymnastic and calisthenic exercises, and condition their bodies for months to withstand the terrific strain of a crew race. Once they can get into a boat, they stay in shape by rowing. Recently, I saw a photograph of a crew which won all of its races thirty years ago. It celebrated with a reunion on the thirtieth anniversary and every one of those men looked as fit as ever—though gray-headed and much older now, of course. The lessons they had learned in their training days stayed with them all their lives.

Boxers, of course, have a rather complicated work schedule when they are in training. Although their road work consists mainly of jogging, some of them add body-bending to it by tossing a rubber ball out ahead of them and stooping to pick it up as they run. Others break into shadow-boxing, with a few dancing steps every so often during the road run. In addition to the road work, there is rope skipping, bicycle pumping, and other leg work.

Body bending, chest weights, and gymnastics are used for the upper body and shoulder development. A medicine ball is also pushed or tossed back and forth with a training partner. This medicine ball may be slapped right into the boxer's midriff in an effort to harden it to the blows which it may receive during a fight.

Wrestlers are among the hardest working of all athletes. Their sport is a wonderful body-builder in itself because it involves the principle of resistive exercising about which I have already told you. But, instead of resisting your own muscular strength, you are resisting that of a well-matched adversary. The relative obscurity of this fine sport might be due to the obvious clowning and insincerity of professional wrestling, which is actually a form of vaudeville show rather than an athletic contest. Real wrestling is a sport which requires quick thinking and lightning-like action.

Perhaps there was an era when wrestling was "grunt and groan," but there is nothing sluggish about it today. It has undergone revolutionary changes. Power is almost useless without speed to match it. In fact, it may take a very strong fellow as long as a year to develop the necessary speed which will give some meaning to his power. The speed must be of a very special kind which will enable him to relax his body or any part of it and tense it again at will.

As a physical fitness sport, it is without peer—except, possibly, for swimming. Certainly, it is a grand way to put muscles on a boy. Many football coaches, for example, recommend that their players take up wrestling in the off season. Directors in athletic clubs will often put an underdeveloped man into a wrestling class to help in the development of the neck and shoulders through the work on the mat. Wrestlers usually work with very light weights which can be swung fast. They know that their sport will take care of whatever physical development they may need. Of course, if you are very underdeveloped, you

will need other work, but a normal boy can get all of his exercise through this fine sport.

There are certain exercises which are required work for beginners in wrestling. Even if you have no intention of going in for the sport, these exercises are really worthwhile trying because they are good body-builders and agility developers.

1. Stand in a slight forward crouch and practice moving the right leg quickly to each side. Then, do the same with your left leg. This exercise serves to make your movements quick in pulling out of the way of an impending attack.

2. Practice moving your arms quickly from side to side and up and down from the wrestler's crouch position.

3. Lie on the mat and roll quickly to each side—pulling in the arm on the side toward which you are rolling.

4. Do a forward tumble from a standing crouch.

5. Practice falling forward, backward, and to either side as in the football grass drills. Do not hit the mat with your elbows or extended arms as you drop. Try to fall in such a way that your body is a sort of arc.

6. Stand in an alert crouched position, with arms ready to reach out, but not too far extended. From this stance, practice making grabs at some object such as a rubber ball on a string which a friend tries to jerk away from your lunge. This will give you some accuracy in grabbing for a quick hold against an opponent.

Wrestlers like rope-climbing, parallel bar work, chest weight pulling, and tumbling exercises for their workouts. These are all exercises which build the kind of muscles they need, aid in developing the sense of balance, and strengthen their hands.

There are now interscholastic championships in different wrestling weights from 95 pounds up to the heavyweight class, which should give everybody a chance to compete against a boy in his own strength and weight category. Many high schools are holding "clinics" at which famous coaches come to

give tips and information, Father and Son Nights, and other attractions. Practically all of the colleges have wrestling teams, and the Olympics have wrestling championships which will give you a wonderful long-range goal at which to aim. But even if you never become a champion you will have done yourself a great service by taking up wrestling. It will give you a better physique, a more alert mind, greater courage, and a confidence in your ability to handle yourself in an emergency.

In practically all sports which a boy may be interested in, he can count on the game to give him the work his body needs to stay in good condition. Tennis players stay in shape by playing tennis; golfers keep trim by going 18 holes a day; handball players play a couple of hard games each day; and the same applies all the way through the sports field.

About the only rule for boys is **DON'T OVERDO**. A boy who plays basketball six nights a week may be hurting, instead of helping, himself. A boy who is yanking heavy weights around may be ruining himself as a sprinter or high jumper because he may be putting on muscles which actually hurt his chances in those sports. Once you have put yourself into good shape, keep that way by avoiding overwork which may make you muscle-bound, cause organic injury, or make you go stale in the middle of your playing season.

In between seasons, if you are not able to participate in competitive games, you can get in plenty of exercise right in your own backyard gym. It should not require more than fifteen minutes a day to stay in good shape after you have worked your way up to it.

16. Swimming Your Way to Health

THE AIRCRAFT CARRIER HORNET HAD BEEN TAKING A SEVERE pounding from the Jap air fleets pouring over in endless waves. The enemy was determined to smash it, seeming to know that from its decks had come the first B-25 attack on Tokyo. As fast as one squadron was shot down, another appeared out of the western sky, and, finally, some got through the curtain of steel thrown up by the American ships. The carrier received damaging hits—had to be abandoned.

Hundreds of American boys went over the sides into the warm waters of the Pacific, among them a New Haven sailor whom I had known since he was a boy. The ocean was no stranger to him and he confidently slipped into the water and paddled away. A good distance away, he settled down to let the life jacket do most of the work of supporting him and to watch the turmoil around him.

After about an hour of watching the continuing battle, he noticed one of his mates in trouble—becoming tired and panicky, and minus a life jacket. Slipping out of his own, he thrust it on the tired swimmer.

"Take this darn thing," he said. "It's chafing me under my arms so much I've got to get rid of it."

As he told me the story, he said, "the funny thing about it was that it actually was chafing me as badly as all that. My sides were like raw beef steak and I had really decided to get rid of it."

This was not mock heroics on his part. He knew that it was only a question of time before he would be pulled in, since there were ships all around. He was a superb swimmer and he knew it. This confidence served him in good stead in what might, otherwise, have become a desperate situation. It saved not only his own life, but that of a comrade as well.

Swimming saved these lives, and the lives of many other American boys during the war. And lack of swimming ability takes the lives of hundreds of other Americans each year. How many times do you read of boys who are drowned in a woods quarry, just because they could not struggle a few yards to shore, or of the fellow who falls out of the boat and is not good enough to paddle over to it, or of the child who falls off a dock and drowns within reaching distance of safety?

Swimming is one of the most important activities of young people. It is a lot of fun, and much of the social life of teenagers consists of parties at the beaches or fun in the pools. In addition to the fun of swimming, however, there is a strong element of necessity about it. It is one of the essentials of our modern life. It is unlikely that any year of your future life will go by without finding you, at some time, on or over water. Practically every one of you may be in a situation where you are likely to find yourself in the water as the result of a minor accident such as slipping off a dock.

Now I am not going to spend much time on the mechanics and techniques of swimming, because these are things you learn best in the water. But I do want you to realize the value of preparing your body by proper exercises and conditioning for the supervised swimming instruction which you can get in camp or at your Y.M.C.A. pool. The better your physical development and muscular coordination, the easier it will be to learn the art of swimming. Bob Kiputh of Yale, as well as other outstanding swimming coaches, insists that a boy do

body-building exercises before he come out for the swimming team.

Most of the exercises used to condition swimmers are the so-called "stretching exercises." In one such exercise, you lie on the flat of your back and keep your legs stiff. Then, with the legs touching the ground at all times, raise your body into a sitting position with the arms extended above your head. Bend down to touch, first, the right toes, then the left toes with the finger tips of both hands.

Another exercise is to stand erect, in good posture, and raise yourself on your toes 50 or 60 times, going up and down slowly.

The familiar push-up, done slowly, is also used. Make sure you go up and down slowly in order to get the maximum benefit, and to extend your arms to the full. All these exercises are designed to stretch your muscles. They develop long muscles without making them bulge out. Through swimming and the stretching drills, an athlete's physique will become well-shaped and well-developed—not muscle bound. The truth of this statement is evident by the fact that the movie Tarzans are generally selected from former swimming champions—all of whom have tremendous physiques.

Competitive swimming requires excellent conditioning and coordination of the muscles in addition to good breath control. You don't need the tremendous agility which is required for so many other exercises, but it is interesting to note that in the body-arching tests given by a university recently the swimmers have come up with the most flexible bodies of any class of athletes.

Since swimming is something that everyone likes to do and nearly everyone is fit for, it is a particularly good way to develop your body. Doctors have no hesitation in recommending it for its therapeutic value to certain types of invalids. I don't know of any sport or activity which can be more universally

Augie Tarasysz. 1918.

helpful to an individual than swimming, and if I were you I would never pass up an opportunity to swim.

One of the reasons why you should learn to swim right away is that you almost certainly will be required to do so to get your college diploma. Are you surprised? Well, it's nothing unusual today. Most modern colleges make it compulsory that all graduates pass a swimming test before they become eligible for a degree. This is a fortunate circumstance for the future welfare of many of these graduates.

One of the most successful of the movie Tarzans was Johnny Weismuller, who held so many swimming records that he could almost have been sued as a monopoly. When movie-goers looked at his massive physique, none could suspect that he was once an under-developed boy. It was his determination to build himself up that led him into swimming—which was the best single form of exercise he could have chosen.

One of the main problems of swimming instructors is to teach their pupils to lose the fear of water which plagues their efforts to learn. A fine way to do this is to play games in shallow water—getting out into the deeper water as your swimming skill progresses. You will become so absorbed in these games that you will not notice the fact that you are in water.

In addition to being fun, most of these games are good forms of exercise. Of course, there are standard games, such as tossing a ball back and forth, or playing tag, but the ones I have in mind are a bit more complicated.

There is, for a starter, *water baseball*. Using a soft rubber ball, make home plate on the edge of the river or lake, anchor two or three other bases at appropriate spots in the water, and you are ready for action. The batting is done with the open palm or clenched fist, as you prefer. The ball must be hit into fair territory out between first and third base. The fielders, who are in the water, try to get to the ball and get it to the first baseman, or hit the batter, or a base runner with it before

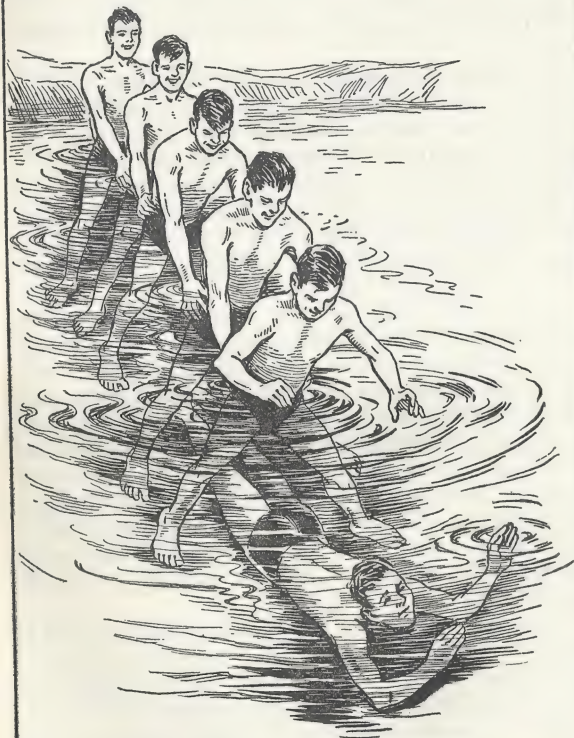
the runner can get safely to his base. The rest of the rules are just about the same as for regulation baseball, except that one strike is out. This "strike" does not include foul balls, which simply do not count at all. The pitcher stands about 20 feet away from the batter, and lobs the ball to him in an underhand toss.

Underwater Accounting is another good game. Make up about 40 or 50 flat pieces of stone with single digit numbers on them. These should be tossed into water which is anywhere from four feet to seven feet deep, depending on the swimming ability of the players. A number is called out, and the players in turn must go under and find it on their first dive. The player who winds up with the most numbers is the winner. Later on, you can make players bring up two blocks to total the number which you have given them.

Low Bridge is another fine way of getting used to the idea of putting your head under water and keeping it there for more than just a second or two. It is the reverse of the game of leap frog, which, incidentally, can also be played in about three feet of water. The players line up in a long line with legs spread apart so that the last player in the line can duck down and crawl or swim under the player in front of him. He may come up for air, and then must go down again and go through the next player's legs. In this manner he must traverse the entire length of the line at which time he becomes the first in line and the player who is now last must begin his tour of the "low bridge."

Water basketball is a fine sport because it can be played in relatively shallow water if your players are not good swimmers. Water polo is, of course, a violent form of exercise and only to be indulged in by swimmers who can take care of themselves in any position in the water. It is important to learn how to extricate yourself from awkward positions in the water. Water games will teach you the secret of this.

LOW BRIDGE



F.R.

A lot of good preliminary practice can be obtained by lying on a stool and kicking your feet in the crawl and frog kicks. When you get into a pool, hang on to the sides and work for ten full minutes at a time on the flutter kick. This is a very important phase of swimming, because about 40 percent of your forward thrust comes from the leg kick.

You will discover how much thrust there is when you get to work with a kicking board. This is a small, light board which you hold out in front of you as you plane forward in the water by the power of your kick alone. The board helps to keep your body on a level plane. A good strong kick will send you churning through the water at a speed which will surprise the uninitiate.

The arm stroke may be developed in pretty much the same manner. Begin by lying on a stool and practice the arm stroke for the American crawl, moving your head over to your left shoulder for a quick breath as your right hand is at the bottom of its "dip and pull" stroke. If it seems easier for you to breathe from your right side, then you may take it when the left hand is at the bottom of the stroke.

You can get arm stroke practice in the water by having a friend hold your legs while you practice the arm stroke in shallow water. Another method is to put your feet through an inflated tire tube and swim by concentrating on your arm stroke alone.

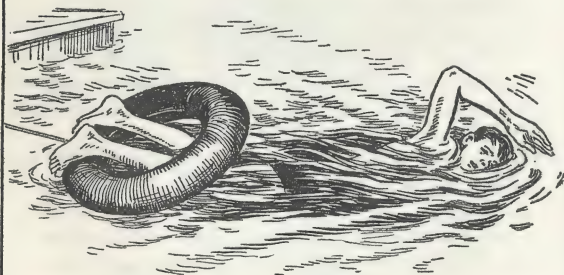
Of course, you will ultimately use a coordinated arm and leg stroke and as soon as you have perfected these enough to have some confidence in them, you should begin to coordinate them by trying them together. Try to work with a competent swimming instructor at hand to criticize your early faults. It is important to build good form right from the start.

Any kind of play or swimming in the water is good for you because you will be learning some element of good swimming form, whether it be relaxation, breathing, balance, or control

KICK BOARD



ARM STROKE



of the body. Remember to keep your eyes open in the water for added confidence. You will feel safer because you will know what is going on and where you are going.

Swimming is just another form of resistive exercising. The resistance of the water to your arms and legs furnishes them with a very beneficial form of exercise. The action of your arm stroke is a press, much like the pull against a chest weight or dumbbell. However, the press in water is constant because the resistance is equal throughout the stroke, whereas working with a weight will give you varying resistances because of varying angles and positions of the weights.

A good swimmer also develops a fine sense of rhythm. Perhaps this is one reason for the success of aquacades and other swim shows. People enjoy watching the rhythm and grace of the swimmers in water ballets.

There have been minor controversies among sports experts about the possible detrimental effect of swimming on football and other sports. The claim has been advanced that swimming softens the muscles and lessens the effectiveness of physical contact athletes. The answer to that is that many fine swimmers participate in other sports with equal effectiveness. Of course, an athlete who is determined to become a great swimmer, such as was the case with Johnny Weismuller, will not be effective as a football player. But this is primarily because he spends all his practice time on swimming. If he devoted all that time to football, he would have become an equally great football player because he had the coordination and will to succeed. In general, swimming will not hurt your skill in other sports, unless you neglect the other sports entirely, in which case you probably prefer to be a competitive swimmer rather than a competitive footballer, or basketballer.

17. *Developing Agility and Coordination*

A STRONG BODY IS SOMETHING TO STRIVE FOR, BUT STRENGTH alone is meaningless for athletic purposes. Some strong men are so clumsy that they cannot perform the simplest skills without bungling. What good is the strength of Samson if you cannot hit a baseball; or are bluffed out of position by an opposing tackle; or fall over your own feet in attempting the shot-put? To make your physical development meaningful, you must try to build good coordination to go along with your newly-found power. Coaches in modern sports feel that coordination is all-important. I have been told that, in exactly those words, by a great many different college and high school coaches.

Coordination in an athlete saves valuable energy. It enables him to exercise an economy of motion which adds up to good records. Watch a crack miler glide with seeming effortlessness and you will appreciate what it means to have good coordination. A football end like the great Don Hutson typifies coordination at its best. He rarely wastes energy in useless actions. As he trots downfield for a pass, the man who is covering him may even feel sorry for poor Don who looks the picture of weariness. All this pity vanishes quickly when Don suddenly cuts off to one side or darts past the beguiled opponent just in time to snatch a long pass and take off for the goal. On the rare occasions when Don would fail to come up with a pass, he would walk back to his position flatfooted, with shoulders drooping. It is not that he was tired. It was merely his way of

conserving his strength for the important part of his work—getting into position and catching forward passes.

You are apt to find the greatest coordination in the greatest athletes. But it is only there because of their constant practice. As Don Hutson once told an interviewer, "I've caught thousands of passes in practice for each one I caught in a game." This repetition of a skill will tend to make it an unconscious part of you.

You must remember that good coordination is not something which a coach can teach you. It is something which only you can give yourself by constant study of the proper techniques of your sport and by practice on those fundamentals. There are certain exercises and stunts which will help you to build coordination, and, fortunately, coordination is something which carries over from one sport or activity to another. Once you develop timing and coordination, it will serve you in whatever sport you go out for.

Good coordination will prevent many time-wasting injuries. Players with good coordination come up with fewer charlie horses, strains, and breakdowns. An uncoordinated athlete is always getting himself into situations which are potentially dangerous. He injures himself when swinging a bat or tennis racket, falls over his own feet on the basketball court, gets his fingers tangled up in the volleyball net, drops weights on his toes, hits himself with tools, and otherwise comports himself with an almost comical lack of grace and agility.

One of the secrets of good coordination is relaxation. An athlete who presses or tenses himself is hurting his coordination. It is also hard to maintain good form and coordination when you are tired or physically unfit. An improper mental attitude such as fear or lack of confidence may cause poor coordination. Similarly, over-confidence may make you sloppy, and sloppiness and lack of concentration can cause bad coordination, too.

A good sense of rhythm and timing usually denotes the potentialities for good coordination in a boy. Many coaches are convinced that a fellow with a good sense of rhythm can be taught any athletic skill—provided his body is built up, too. Pole-vaulting, hurdling, high-jumping, running, batting, T-formation plays in football, and a golf swing are among the hundreds of athletic skills which require good rhythm. Let's take a peek at some of the exercises and activities which you can do to develop coordination and agility in yourself.

The first one is rope skipping. Boxers use it as an important part of their training camp routine. Other athletes are now beginning to realize its importance and are using it for developing a sense of rhythm and coordination between the arms and legs. It is possible to become quite adept at rope skipping by learning variations such as the backward turn, crossing your arms over on every second jump, trying to make the rope swing over your body twice for each jump, running along with the rope swinging in regular rhythm once for each step you take, jumping twice for each complete turn of the rope, and so on.

A good game which employs rope jumping is to tie a sock, which is half filled with sand, to the end of a ten- or twelve-foot rope. Have a friend twirl it in a wide circle so that the sock barely clears the ground. As he twirls the rope, you and other friends station yourselves in a circle around him and keep leaping over the rope as it nears your position. Any jumper who fails to get over the rope must take over the chore of spinning it.

If this rope is tied securely to the top of your long iron pipe, it can be used to develop the timing of your baseball batting or tennis swing. Have a friend hold the pole upright and spin it so that the rope flies around in a giant circle. You may stand just outside the radius of its swing with a bat and take cuts at the sock as it goes by. First, try to hit the sock as it is coming toward you. This will prove fairly easy, unless

you really need a lot of work on your coordination. After you begin to hit the sock pretty regularly, have your friend start spinning the rope in the opposite direction so that you will be swinging in the direction that the sock is traveling as it passes your position. This will prove quite a bit harder to do. Keep at it until you can hit the sock—not the rope—every time you take a swipe at it.

Agility runs between obstacles furnish good tests of a boy's speed, adaptability, coordination, and agility. You can play quite a few games which will give you practice in this important skill. First, place a series of peach baskets, or other obstacles, in a straight line the length of your backyard. Set them about six feet apart and run at top speed, passing to the right of the first one, to the left of the second, and alternating in this manner until you reach the last obstacle which you round, and return the length of your obstacle course, still dodging first to one side, then to the other, of each basket.

If you have a basketball, add the complication of dribbling to this run. In dribbling, try to keep your eyes ahead on your course and learn to handle the bouncing ball by feel alone. Keep your bounces low, and you will have less trouble in controlling the ball as you run along at top speed.

Another agility running stunt is to place newspaper sheets at random all over the backyard and practice running at top speed across the yard without touching any of them. You will get plenty of dodging practice in this if the day is windy and the papers are shifting about. If you can corral a friend or two, you might play tag in the yard with the rule that no one may step on or over a newspaper.

High knee action running is desirable in many sports and can be learned by placing bushel baskets in a line, then running down the line, stepping into each basket as you reach it. Keep the baskets very close together so that you will have to step high often.

Any kind of balancing on pipes, barrels, or floating logs is a good way to train you in coordination.

From a relaxed standing position, practice leaping far to either side. Have a friend stand behind you and tap you on either shoulder at random. As soon as you feel the tap, leap as far as you can to the opposite direction. After this, practice hitting the dirt as soon as he touches your neck. These two exercises are called the "rattlesnake escape leap," and the "bomb escape fall," respectively.

The bar vault is another good agility trainer. Set one of your horizontal bars at the five-foot height. Grasp it with either hand and vault over it, using the combined pull of your arm and the spring of your legs. Learn to do it from a standing start. At first you may have to do this with both hands on the bar, but you should learn to do it one-handed as soon as you can.

Juggling three tennis balls, rolling a ball down your forearm and bouncing it up off your elbow, spinning a basketball on your finger tip, and similar tricks are good for developing your sense of timing and coordination. Don't be afraid to "fool around" with such stunts occasionally. They sharpen your eye and teach you to control your muscles properly.

A good stunt is to take a spade and place a marble on it. Hold the spade with your left hand on the grip and your right hand down near the iron. Flip the marble up into the air, let it fall in the circle formed by your arms, body and shovel handle; and try to catch it on the shovel again before it reaches the ground. Keep spectators at a safe distance because you may bang them with the sharp edge of the spade in your enthusiastic swinging. It also pays to watch out that you don't bang yourself. The iron can inflict a painful hurt, if you are clumsy about it.

Body balance is important to good coordination. With the help of a friend and your backyard gym you can learn a lot about balancing and tumbling tricks.

Balance is important in many of your gymnastic stunts.

HEAD STAND



HANDS AND HEAD FORM A TRIANGLE.

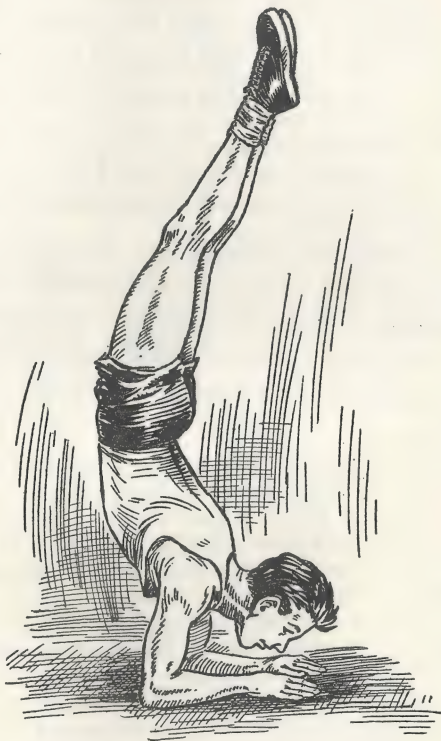
Tumbling gives you the confidence to make diving catches in baseball and football, to go after the basketball in scrimmages after a free ball, and otherwise improve your efficiency in many active sports.

The easiest of balancing stunts is the head stand which most boys have tried at some time or other. The important thing in the head stand is to make a good wide tripod of your head and hands. The pressure of your hands and arms can compensate for any slight tendencies to lose balance. Get a mat for balancing work, or work on the grass and have a small pillow for your head. Place your hands on the mat, just a bit wider apart than your shoulder width. The fingers should be pointed straight ahead and spread. Place the forehead on the mat about 18 inches in front of the hands. Raise your buttocks up so that your upper torso is practically straight up and down, then kick your foot up into the air—not too hard, or the momentum may flip you over on the flat of your back. You will find that a few trials will teach you the exact amount of force needed to get your legs up. A slight arch in your back will help you to keep the head stand position. A friend may be stationed behind you to catch you if you put too much zip into your first efforts to get the upright position. You should not have much trouble achieving it, however.

Next, you will want to learn the hand stand. It is best to work up to it by trying the forearm stand first. In this stunt, your body balances with toes up in the air, on a base formed by your lower arms from the elbows down to the palms. Do the forearm stand by placing your forearms flat on the mat with the palms of your hands facing the ground, fingers spread. Lift your upper torso up as in the previous stunt and kick off as before. Keep your legs together when you reach the balanced position, and maintain a heads-up position with your chin, mouth, nose, and eyes all pointing at the ground.

From this you may graduate to the simple hand-stand, which

FOREARM STAND



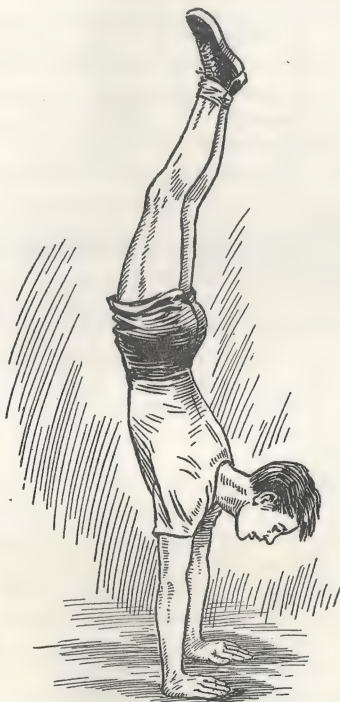
FR.

is the most difficult of the three stunts given here, but which is also the most important for advanced gymnastics and balancing techniques. If you cannot get a friend to work with you on the hand-stand drills, it would be wise to practice with the horizontal bar at the five-foot height so that you can kick up to it and use it as a support. If your friend will catch your legs as they come up, and place them against a wall, or against the horizontal bar, it will help you to get the feel of the hand-stand position. Learn to lock your elbows in a straight line from shoulders to wrists in order to keep the weight of your body on the bones rather than on the muscles. Get away from the wall support as soon as possible.

In performing the hand-stand, place your hands on the ground at shoulder width, with fingers spread and pointed straight ahead. Keep the same head position as in the forearm stand and get one foot up into the position you would assume for a sprinter's start. Lift up the other foot and kick up your body with the foot which is under your body, trying to use just enough force to get your body into a straight up-and-down position.

If you overbalance or kick too hard, you will fall over on your back. As soon as you feel this happening, tuck your head forward for a roll and roll out of the fall on your back. The secret of maintaining your balance in the hand-stand lies in controlling your position with the finger tips. Press hard on the finger tip ends if you feel your balance swaying too far in the direction of your back. Lowering your head slightly will enable you to compensate for overbalancing in the direction of your chest. Don't get discouraged if it takes time to learn this trick. Once you have mastered it, the knack will stay with you for the rest of your life. However, to succeed in this, or any other skill, you must practice. Working with a friend will enable you to avoid some of the bumps and will spur you on by reason of the friendly competition.

HAND STAND



HAVE SOMEONE CATCH YOUR LEGS
WHEN YOU KICK THEM UP, AND STEADY
THEM UNTIL YOU LEARN BALANCE.

F.R.-

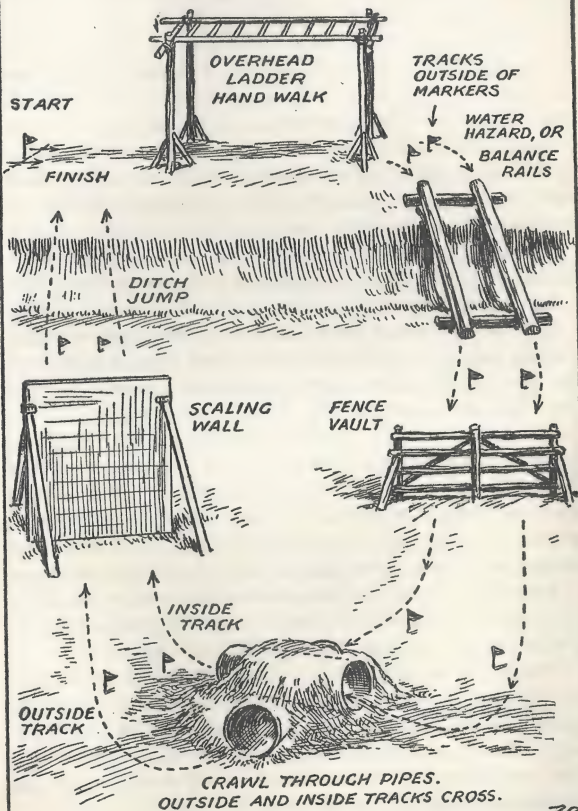
AN OBSTACLE COURSE

Agility training and physical development of the finest kind may be obtained by building an obstacle course in your backyard, in a vacant lot, or a secluded glen in the woods near your town, where you and your friends can hang out. It's fun to run this obstacle course against a stop-watch, or against a friend who is racing you through the maze. The illustration on page 197 gives you a sample of what such a course can look like. Start with a tumble roll. About five yards from the starting line, place a 2x4-inch plank on its side and about a foot off the ground. This should be set so that the two-inch surface is on top. The object is to walk the length of this rail without falling off. If you lose your balance and have to step off, you must go back to the front end of the rail and try again until you succeed in going the full length. The 2x4 ought to be at least twelve feet in length for a real test of your balancing ability. About ten yards further along, dig a jumping ditch which is at least eight feet wide. The ideal distance would be ten feet. This ditch may be filled with water to a depth of a few inches. The ditch must be jumped on the way to the next obstacle, which is a rack of loose poles, under which you must crawl without dislodging any. The poles are set on a pair of rails which are 18 inches off the ground. If any are knocked off, you must replace them on the bars and try crawling under again until you get through without knocking any off.

Having completed this, you come to a rope hanging from a tree limb. Swing yourself over a ditch by means of this rope.

A number of bushel baskets may be set up in close order for you to run through, stepping into each basket. Lacking baskets, you may substitute a series of large rocks on which you step. The purpose of these rocks is to get the feel of crossing a creek on large stones. The stones may be irregular and wobbly, just like those you would meet in a real life situation.

OBSTACLE COURSE



AR.

A long, overhead ladder to traverse hand-over-hand should be part of your obstacle course, too. About half-way through the course, you should build an eight-foot wall which must be scaled without any help.

Other obstacles to complete the course may include a rail at waist height which must be vaulted; a tangled mass of trees and logs to be climbed over; an upright ladder to be climbed, with a jump from the top to the other side; a large pipe or drum through which you must crawl; a log over a water hazard; a 15-foot rope, up which you must climb to slap the support with your hand; and, a line of posts close together, which you must pass first to the right, then to the left.

Such an obstacle course will prove a terrific agility developer. It was used by the Army during the war to train its soldiers and commandos.

One way for you to use it is to have a friend time you with a stop-watch. This will tell you how good you are right now, and how much you are improving as your exercises begin to make it easier to overcome the various obstacles.

Another method for using this course is to duplicate the obstacles right alongside each other with the pipes set right in the middle of the course. The pipes should criss-cross each other, with one on top of the other, so that the competitor who was on the outside lane would end the last half of the course on the inside lane and thus have the same total distance to cover.

A third method is to compete as a relay team against neighborhood rivals. Anywhere from four to eight men on a team will make it an exciting contest to play and watch.

Such a course really needs a whole vacant lot, or a spot in a big field to be developed with all the obstacles which I have given here. If you have only a section of your own backyard available, you can condense the course by eliminating some of the more complicated obstacles, bringing those you do use close together.

18. *Living the Good Life*

WHEN YOU ARE ON A VARSITY TEAM, YOU ARE EXPECTED TO BE in good physical condition. The fact that you have had the ambition and energy to make the team is a strong indication that the physical fitness is there and that you have already undergone a program of pre-athletic training in order to build up your body for the strains of competitive sport.

But although physical fitness and a strong body are prerequisites to success in any field, they are not the only factors involved. There is, for example, the mental discipline which goes into making a worthwhile athlete and a worthwhile citizen. A varsity man today is put on his own responsibility far more than was the case a couple of decades ago. Similarly, you will have to put yourself on your honor in following a program of personal body improvement. You will not be watched over by a coach or trainer. You will be living the same life that the rest of your pals lead. The responsibility to keep in training will be entirely up to you. Your diet, sleep, care of your body, and adherence to exercising routine will become your own doing. You can earn self-respect and the respect of your fellows by sticking to what you plan. It will not be too difficult.

Whether or not you realize it, you have been brought up on games of body contact and speed and skill. Without knowing it, you have been building your body, because you were just having fun on the sandlots and in the play grounds. This development of your muscles in grade school and throughout

your high school days will serve you in all your later life.

One of the first things to take care of is your weight. It is a good idea to keep tabs on your weight week by week. Many athletes are plagued by weight problems. Professional baseball players sometimes stuff themselves during the winter season and return to spring training many pounds overweight. Time and time again this overweight will cost them playing efficiency and, frequently, a star performer of a year ago will be a mediocre player or a failure in the year he picked up weight. You can prove this for yourself by watching the newspaper reporters' accounts of players at training camps. Any player who has picked up a lot of weight will either have to work very hard to get it down, or lose effectiveness.

The same goes for football players. They may get just a step slower, but that means they miss their assignments on offensive plays, or lose the ball-carrier on defense.

The boy who has learned to push himself away from the table while he still feels that he can eat a bit more has learned one of the greatest lessons of life. There is an old saying in the sports world: the best exercise for losing weight is to place your hands against the side of the dinner table and push yourself away—just before dessert is served. To this, I might add another good one: shake your head firmly from side to side whenever seconds are passed, if you are fat or have a tendency to pick up too much weight.

One of the things for an athlete to guard against is a heavy midday meal. Especially when you are planning to go out and play or practice, your noon meal should consist of easily-digestible foods, avoiding pastries, or any soggy, greasy or fried foods.

There are classic examples of famous athletes who almost ate themselves out of competition. Everyone is familiar with the hot dog and soda pop episode in the life of Babe Ruth, when the great Bambino ate so much of this stuff that he was hos-

pitalized. Being a basically smart athlete, he realized that he had to be more careful with his diet. Because he reformed just when many sports writers were prophesying the end of his career, he came back to even greater success by establishing a new home run record which still stands unchallenged.

Many professional fighters had this same sort of weight difficulty and outgrew their normal weight divisions. This brought them up against two alternatives—both unpleasant. Either they had to fight fellows who were in a heavier weight class naturally, by reason of bigger physiques, or they had to lose weight so quickly to get back to their correct poundage that it weakened their stamina.

On the whole, I would say that the average American mother instinctively seems to know how to provide her sons with a good diet. If you are overweight you should get a list of foods and their caloric content, and shy away from those with a lot of calories. Any greasy foods, mashed potatoes, cakes, pies, candies, jams, nuts, are all heavy on calories. And calories are what make you put on weight. You need not avoid potatoes entirely. You can eat practically anything in moderation. The important thing is that you should confine yourself to one or two slices of bread or just one small potato, baked, if you are overweight.

You need from four to eight glasses of water daily regardless of your weight. Some salt is also an essential part of your diet, especially in hot weather, to replace the body salts lost through perspiration.

It is a good idea to avoid eating when you are tired or angry because your digestion is certain to be working below par at such times, and you are apt to end up with an upset stomach. Get a lot of milk, eggs, leafy vegetables, tomatoes, fruit and vegetable juices, whole wheat, and meat. Eat your meals at meal time and avoid candy or snacks in between meals. If you

feel that you simply must have something in between meals, make it a glass of milk.

Coaches find that boys who eat a substantial breakfast will not require a heavy lunch. In fact, the nervous tension of the impending contest will help to keep them from eating a heavy lunch. Most medical and physical education authorities seem to agree that your breakfast should be a substantial meal with milk, cereal, eggs, and fruit a part of it.

In cases where a boy is considerably over or under weight, it is advisable to consult the family doctor for a suitable diet. Follow your physician's advice implicitly until you get to the desirable weight, then keep at that weight by a weekly check-up on yourself. Try not to fluctuate more than a couple of pounds over or below the weight which a boy of your age, height, and bone structure should have. If you coordinate a sound diet with a program of good exercises, you should have no trouble.

Don't underestimate the value of sleep in your campaign for a sound body. You simply cannot develop a sound physical and mental condition without nine or ten hours of sleep every night, if you are of high school age. Try to sleep with the windows open wide to insure yourself an adequate supply of fresh air. It is also beneficial to stretch out for a short nap or relaxing rest sometime during the day. This applies not only to those parts of the year when you are engaged in violent competitive activity, but to any time and any season.

Sleep is the body's answer to wear and tear. During the resting period of sleep, your body is busy restoring used tissue and revitalizing your muscles for another round of strenuous activity. A boy who tries to get along on little sleep may seem to be getting away with it, but actually he is hurting his physical efficiency. He may not know it, of course, because he has never given himself the opportunity to find out, but he is working and feeling below par. Why should you walk around like Lady

Macbeth when a regular nine or ten hours of sleep will keep your body bursting with energy?

During the war, the secret police of the dictator countries realized the value of sleep to a man and used this knowledge to weaken prisoners whom they were questioning. The prisoner would be kept from getting sleep until his will cracked and he would give any information which was desired. If you are tired because of insufficient sleep you are more likely to give up in life and in sports. Things somehow just don't seem worth the effort and it all stems from that fatal body weariness induced by lack of sufficient rest and sleep.

If you are in doubt about the number of hours you should sleep it is better to err on the side of too much rather than too little sleep. In general, physical education authorities think that a boy in the eight to fourteen age brackets should get 10 to 12 hours of sleep, while those in the 14 to 18 year age group should get nine to ten hours of sleep. Light, warm covers, a good firm mattress and pillow, and clean linens are recommended.

Personal cleanliness is important to an athlete. It keeps him well, free from sickness, and in good mental spirits. There is an old saying that good health is a lot like the weather: everyone talks about it, but no one does anything about it. Well, you can. A few simple rules, carefully observed, will keep you in good personal health.

First, is a regular check-up by the family doctor. You should see him once a year to have your nose, throat, eyes, ears, teeth, and body thoroughly examined. This is the way to catch any potentially troublesome physical defects right at the outset when they can easily be corrected.

Second, is skin and personal cleanliness. Your body needs at least two baths a week, with a coarse hand towel to rub off the dead skin and skin oils which tend to clog up your pores. Your pores need to be kept open because each pore is a tiny mecha-

nism through which your skin breathes. In addition to these baths, it is a good idea to take a daily shower. Your hands should be washed as soon as possible after playing or working, because the hands have a natural tendency to wander to the nose and mouth in carrying food or wiping off perspiration. Dirty hands are potential infectors.

Third, have your teeth in good repair. Tooth decay may sometimes poison your entire system and necessitate the removal of the offending teeth. Further than that, bad teeth will keep you from chewing your food efficiently and rob your body of its full quota of value from the food you eat.

Fourth, take good care of your feet, if you hope to have a long athletic career. Foot troubles are the bane of an athlete's existence. A ball player with bunions or corns suffers agonies in the performance of his athletic duties. Your shoes should fit correctly, the socks should not be wrinkled, and the feet must be washed nightly. Take care to dry the feet thoroughly after washing, and shake some good foot powder into each shoe to keep your feet dry during the day. Hot, moist feet are breeding places for the infection known as athlete's foot. Once you have this fungus infection, it is extremely difficult to get rid of it. The best way to deal with it is not to get it in the first place.

The fifth personal health requirement is good daily elimination. This refers to the daily bowel movement which eliminates food residues and waste poisons. You should try to train yourself to have a regular schedule—perhaps each morning after breakfast, or each evening before going to bed. A glass of water upon arising, plus one before each meal will help you to keep from becoming constipated.

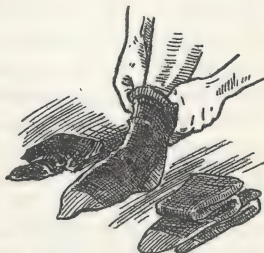
If I were asked to outline a year-round program of physical fitness training for the average boy, I would say that the following is a good schedule:

Nine or ten hours of sleep nightly.

A brisk five-minute calisthenic drill immediately after rising.

FOOT CARE

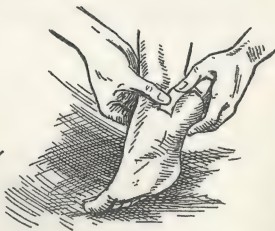
DUST INSIDES OF
SHOES WITH
FOOT POWDER.



BRING EXTRA PAIR OF
SOCKS WHEN ON HIKE.



CUT TOENAILS
STRAIGHT ACROSS
WITH SMALL SCISSORS.



COVER BLISTERS WITH
ADHESIVE TAPE.

F.R.

A shower before breakfast.

One hour of concentrated work on your backyard gym, or a couple of hours of play and practice at a game such as basketball, football, baseball, tennis, or handball.

The calisthenics in your room should consist of one minute of fast body-bending drills, then the full knee bend for another minute. Begin by standing on your toes and dropping to a full squat, so that you are sitting on your heels. Rise and lower your body with your hands held straight out in front of you. The third minute would be bicycle pumping from a flat-on-your-back position. Lift your feet high into the air and pump hard. The fourth minute should be push-ups from the floor. You ought to do them at a fast tempo, keeping your body in a straight line at all times. End with a minute of running in position. Simply stand in one spot and lift your feet up and down, high, in a running motion, without actually moving from your position. Run on your toes for less noise and more exercise.

This five-minute "daily dozen" will just about bring you to a sweat, at which time you are ready for your shower and a big day. Your blood will be circulating through the muscles, which have come alive, and, you are ready to plunge into any work or play at full efficiency.

Learn to budget your day. Give so much time to study, a necessary amount to do family chores and work, take the full nine or ten hours for sleep, and the rest for play and practice. Every fellow, if he is physically well, should be encouraged to be ruggedly active throughout the day.

During your activity, however, let common sense prevail. Remember to keep warm for a while after exercising. After a hard workout, stay on your feet for a while to cool off gradually and relax any muscles which might otherwise tighten up on you. Avoid standing about in drafty gyms or out in the cold when you are perspiring after strenuous exercise. The chill

of evaporation on your body will weaken your bodily resistance and make it easier for a cold to affect you.

Take your practice seriously, otherwise you may merely be wasting your time. During the 30's, there was a pitcher named Dazzy Vance with the Brooklyn Dodgers. He had a great curve and speed to burn, but could not seem to control it. One day, during batting practice, the manager noted that Dazzy was throwing his curve carelessly without any interest in whether it went over the plate. He called the pitcher aside and told him he would never learn to throw that curve in a game until he learned to take it equally seriously during practice. So Vance took it seriously and perfected that curve in practice until it became his strongest weapon—and that statement must take into account the fact that Vance was the Bobby Feller of his day so far as speed was concerned.

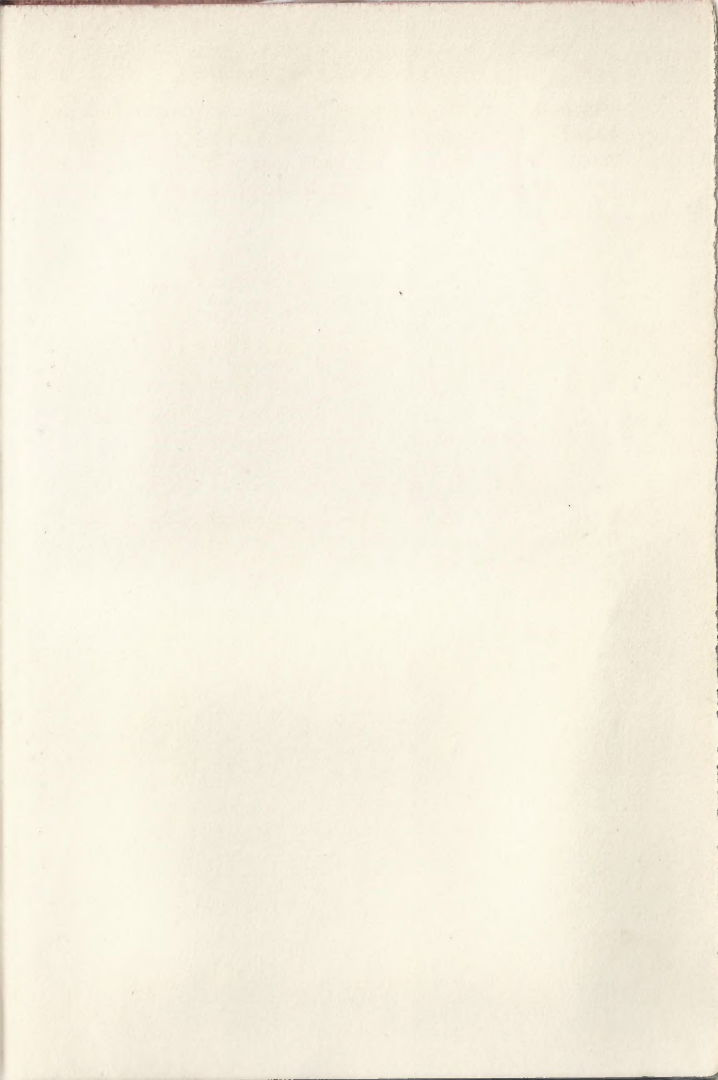
So the effects of training are intensified if you are serious about your work. Your total strength will be increased. Your body will be able to work for longer periods of time, at a faster pace. It will recover more quickly from the effects of fatigue, and all of your body organs will be healthier and stronger.

You need not be afraid of doing too much work. One physical fitness expert has stated emphatically that a 14 or 16 year old boy needs four hours of "big muscle activity" to secure the best organic development. By "big muscle activity," he meant play or exercise of the type which puts the big muscles of your body—the back, abdomen, shoulder, and heavy arm and leg muscles—into activity.

Any boy who aspires to athletic greatness should start putting his body in order right now. If you come to your varsity coach with a sound physique, no overweight, and your body toned, you will be more receptive to his instructions, and your progress will be faster.

Even if you are not interested in competitive sports, it will pay you to get your body into good shape and to keep it that

way because it will prepare you for the possible emergencies of later life. If it is true that this world is a place of "survival of the fittest" let's try to make ourselves the fittest so we will not only survive, but increase our accomplishment and our joy in living.



MAY 29 '56

6446147[✓]



796 P28 B 6446147

PASHKO

BOY'S BOOK OF BODY BUILDING

Please: These cards **MUST** be returned
with this book to clear your record.
Penalty 10 cents per card

46

BROOKLYN PUBLIC LIBRARY
LEONARD BRANCH
DEVOE & LEONARD STREETS

Give your **NEIGHBOR** a chance to borrow
this book. Return it on or before **DUE**
DATE SHOWN ABOVE. The fee is 5¢ per
calendar day for each book kept overdue.

AMERICAN BOY'S
TREASURY OF
**Sports, Games
and Hobbies**

By STANLEY PASHKO

IN THIS BIG, lively idea-packed book you will find described just about everything a boy is interested in doing or making—games, crafts, arts and skills—a treasury of real boy information for all boys to read. Things to dream about, to try out, and work over; sports and plans, fun and facts. Things to do in summer and winter, on land and in the water, in town and in the woods.

Here Is Everything You Want to Know about:

- ☆ How to Make the Varsity Team
- ☆ Games for Leisure Time at Home
- ☆ Inside Information on Interesting Hobbies
- ☆ New Water Sports and Fun
- ☆ Projects for Science Experiments
- ☆ Skill in Woodsmanship
- ☆ New Kinds of Secret Codes

**More than 50 full pages of illustrations—
not just pictures but really helpful explanations of:**

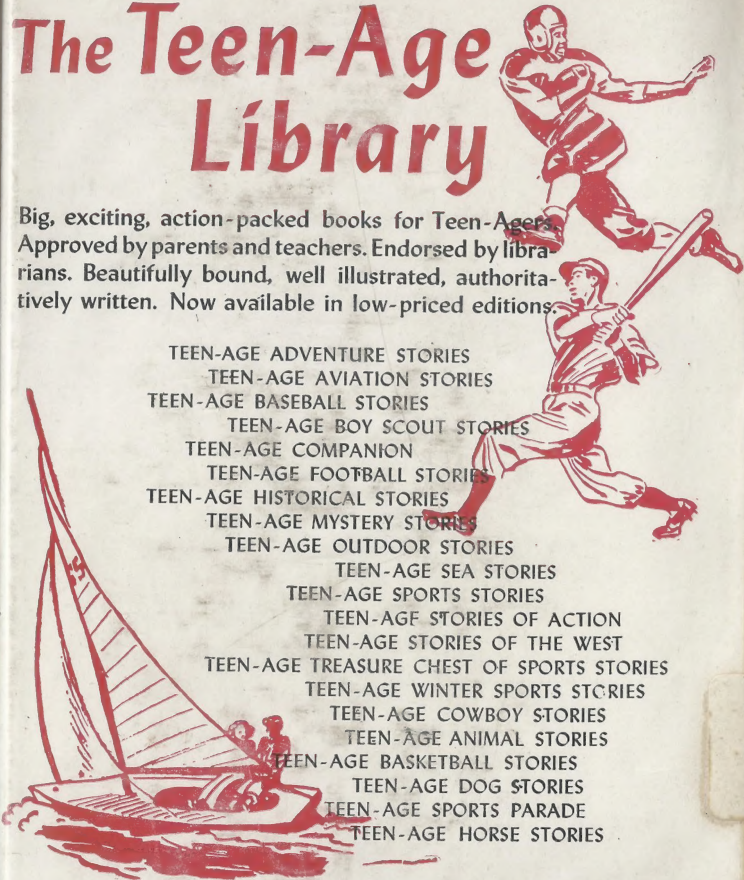
- ☆ Fly Casting Technique
- ☆ Sports Form
- ☆ Archery Shooting
- ☆ Beadwork and Design
- ☆ Making Kites
- ☆ Building Shelters
- ☆ Bobsleds
- ☆ Surfboards
- ☆ Rafts

GROSSET & DUNLAP, *Publishers*
NEW YORK 10, N. Y.

EXCITING ACTION-PACKED BOOKS
FOR TEEN-AGERS

The Teen-Age Library

Big, exciting, action-packed books for Teen-Agers.
Approved by parents and teachers. Endorsed by librarians. Beautifully bound, well illustrated, authoritatively written. Now available in low-priced editions.



TEEN-AGE ADVENTURE STORIES
TEEN-AGE AVIATION STORIES
TEEN-AGE BASEBALL STORIES
TEEN-AGE BOY SCOUT STORIES
TEEN-AGE COMPANION
TEEN-AGE FOOTBALL STORIES
TEEN-AGE HISTORICAL STORIES
TEEN-AGE MYSTERY STORIES
TEEN-AGE OUTDOOR STORIES
TEEN-AGE SEA STORIES
TEEN-AGE SPORTS STORIES
TEEN-AGE STORIES OF ACTION
TEEN-AGE STORIES OF THE WEST
TEEN-AGE TREASURE CHEST OF SPORTS STORIES
TEEN-AGE WINTER SPORTS STORIES
TEEN-AGE COWBOY STORIES
TEEN-AGE ANIMAL STORIES
TEEN-AGE BASKETBALL STORIES
TEEN-AGE DOG STORIES
TEEN-AGE SPORTS PARADE
TEEN-AGE HORSE STORIES